

# amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 47, No. 4

APRIL 1979

## ***FEATURED IN THIS ISSUE:***

- ★ GETTING ON TO 160 METRES
- ★ 10/11 Mx DIRECTION FINDING LOOP AERIAL
- ★ EQUIPMENT REVIEW: THE ALPHA P76 LINEAR AMPLIFIER
- ★ OSCAR 8 MODE "J" PRE-AMP
- ★ THE IMPORTANCE OF AMATEUR REPRESENTATION AT WARC

Registered for posting as a Publication —  
Category "B".



# IC22S, SMALL WONDER

ICOM's matchless mobile IC22S has, since its introduction, been the standard against which all other VHF mobile transceivers have been measured. It is prime example of ICOM's quality engineering, peak performance and phenomenal flexibility blended into one splendidly simple and affordable radio. Small wonder that the IC22S has been the most popular radio that ICOM has ever offered and the most popular 2m rig in Australia.

Built to be viable operating hardware for years to come, with a magnificent high sensitivity receiver and instant programming of any 22 of 256 possible frequencies, the IC22S is priced for the mobile beginner and the multi-vehicle serious VHF enthusiast. Small wonder that many hams own and operate more than one IC22S.

With quick change mobile mount, external speaker provisions, and 90 day VICOM warranty, the IC22S is the perfectly affordable radio to those whom present performance and future possibilities are important. Small wonder.

**All ICOM radios significantly exceed FCC Specifications limiting spurious emissions.**

**Specifications:** ☐ Frequency Range: 146-148 MHz ☐ Voltage: 13.8 V DC (negative ground) ☐ Current Required: TX: 2 amps at 10 W, 0.9 amp at 1 W; RX: 700 ma at max audio ☐ Size: 58mm(0) x 136mm(0) x 218mm(0) ☐ Weight: 1.9 Kg ☐ Number of Channels: 22 selected from 256 possible ☐ Power Output: 10 W or 1 W, selected ☐ Modulation Width: 5 KHz ☐ Microphone Impedance: 500 ohms ☐ Spurious Level: -60 dB below carrier ☐ Modulation Acceptance: 16F3 ☐ Receiver Sensitivity: 4 mv for 20 dB quieting ☐ Spurious Response: 60 dB or more attenuation ☐ Bandpass: < 7.5 KHz/-4 dB, < 15 KHz/-60 dB ☐ Squelch Sensitivity: -8 dB below 1 mv

NE VHF/UHF AMATEUR AND MARINE COMMUNICATION EQUIPMENT

DISTRIBUTED BY:



AMATEUR RADIO DIVISION  
68 Eastern Road  
SOUTH MELBOURNE VIC 3205  
PH (03) 699 6700 Telex AA30566

Ballarat: 44 3882  
Perth: 446 3232  
Launceston: 32 7234  
Adelaide: 43 7981  
Gold Coast: 32 2644

Canberra: 82 3581  
Brisbane: 38 4480  
Sydney: 681 3544  
Hobart: 43 6337  
Melbourne: 836 8635



# amateur radio

Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

APRIL 1979

VOL. 47, No. 4

PRICE: 90 CENTS

(Sent free and post paid to all members)

Registered Office:  
2/517 Toorak Road,  
Toorak, Victoria, 3142.

EDITOR:  
BRUCE BATHOLÉ\* VK3UV

ASSISTANT EDITORS:  
RON COOK\* VK3APW  
GIL SONES\* VK3AUI

TECHNICAL EDITORS:  
BILL RICE\* VK3ABP

CONTRIBUTING EDITORS:  
SOS ARNOLD VK3ZBB  
MIKE BAZLEY VK3HD  
ROD CHAMPNESS VK3UG  
SYD CLARK\* VK3ASC  
RON FISHER\* VK3OM  
DAVID HULL VK3ZDH  
ERIC JAMIESON VK3LP  
KEN JEWELL VK3AKK  
PETER MILL VK3ZPP  
LEN POYNTER\* VK3ZGP  
BILL VERRALL VK3WV  
WALLY WATKINS VK3ZNV

DRAFTING:  
NEIL OSBORNE\* VK3VEI

PHOTOGRAPHER:  
REG GOUDGE —

BUSINESS MANAGER:  
PETER DODD VK3CIF

ADVERTISING:  
PETER SIMMONS

\*Member of Publications Committee

Enquiries and material to:  
The Editor,  
PO Box 2611W, GPO Mails, 3001

Copy is required by the first of each month. Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Advertising: Material should be sent direct to P.O. Box 150, Toorak, Vic. 3142, by the 28th of the second month preceding publication. Phone: (03) 24 8832. —Hamads should be sent direct to P.O. Box 150, Toorak, Vic., 3142, by the 1st of the month preceding publication.

**Trade Practices Act:** It is impossible for us to ensure that advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly. Readers are reminded that, when buying, obtaining or receiving goods from overseas including goods listed in advertisements by overseas organisations in this Journal, Customs import duties and Sales Tax may be levied on the goods at the time of importation. These amounts, if any, are payable by the purchaser unless the terms of sale state otherwise and the seller has made specific provision to this effect in his quotation to the buyer or unless other prior arrangements are in force between the buyer and the seller.

Printers: EQUITY PRESS PTY. LTD.  
60-52 Islington Street, Collingwood, 3068  
Tel.: 41 5054, 41 5055

## CONTENTS

### TECHNICAL

A 10/11 Metre Direction Finding Loop Aerial	13
Amateur Satellites	28
An Inexpensive Amsat Oscar 8 Mode "J" Rx Pre-Amp.	14
Equipment Review — The Alpha P78 Linear Amplifier	26
Getting on to 160 Metres	9
Novice Notes	18
VHF Propagation between Albany and Adelaide	23

VK/ZL Dx Contest — Results 1978	39
Westlakes Novice Contest — 1978 Results	35
WICEN Operations in South Australia	15
Woodpecker: Baloney or What?	28

### DEPARTMENTS

Around the Trade	44
Awards Column	40
Contests	35
Hamads	49
Ionospheric Predictions	49
Letters to the Editor	34
Obituary	50
QSP	4, 5, 6, 12, 33, 35
Repeaters	48
Silent Keys	50
VHF-UHF — an Expanding World	42
WIANEWS	6
WICEN	41
You and Dx	48

### GENERAL

Antenna Permits (and other non-events) in S-E Asia	19
Donations to the WIA WARC Fund	5
Field Day — Pictorial Round-up	
Wagga ARC Activity	32, 33
Ross Hull 78-79 Contest Results	35
SEANET — The South East Asia Amateur Radio Network	17
The Importance of Amateur Representation at WARC 1979	25

### ADVERTISERS' INDEX

50

### COVER PHOTO

#### EASTERN AND MOUNTAIN DISTRICT RADIO CLUB WARC DONATION

David Wardlaw VK3ADW(L), the WIA Federal President, scarcely believes his eyes when receiving a cheque for \$1000 from Tony King VK3JO, President of the EM & DRG. It is pleasing to record this most generous donation, and note the Club's recognition of the WIA effort at the conference.

Photo by Bill Ross VK3ZMI.

# WIRELESS INSTITUTE OF AUSTRALIA

**Federal President:** Dr. D. A. Wardlaw VK3ADW

## Federal Council:

VK1 Brig. R. K. Roseblade VK1QJ  
VK2 Mr. T. I. Mills VK3ZTM  
VK3 Mr. J. Payne VK3AED  
VK4 Mr. A. R. F. McDonald VK4TE  
VK5 Mr. I. J. Hunt VK5QX  
VK6 Mr. N. R. Parfitt VK6NE  
VK7 Mr. R. K. Emmett VK7KK

**Staff:** Mr. P. B. Dodd VK3CJF, Secretary.  
Part-time: Col. G. W. Perry, Mrs. J. M. Saddon and Mr. P. Simmons (AR advertising).

**Executive Office:** P.O. Box 150, Toorak, Vic., 3142.  
2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.  
**Divisional information** (all broadcasts are on Sundays unless otherwise stated):

## ACT:

**President** — Mr. E. W. Howell VK1TH  
**Secretary** — Mr. Ted Redcliffe VK1TR  
**Broadcasts** — 3570 kHz & 146.5 MHz: 10.00Z.

## NSW:

**President** — Mr. D. S. Thompson VK2BOT  
**Secretary** — Mr. T. I. Mills VK2ZTM  
**Broadcasts** — 1825, 3595, 7148 kHz, 28.47, 82.1, 82.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and Ch. 8 and 9).

## VIC:

**President** — Mr. E. J. Sugges VK3ZZN  
**Secretary** — Mr. J. A. Adcock VK3AGA  
**Broadcasts** — 1825, 3600, 7135 kHz — 53.03Z AM, 144.2 USB and 2m Ch. 2 (8) repeater: 10.30 local time.

## QLD:

**President** — Mr. A. J. Aresse VK4QA  
**Secretary** — Mr. W. L. Gielis VK4ABG  
**Broadcasts** — 1825, 3500, 7140, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.

## SA:

**President** — Mr. G. J. Hurst VK5HI  
**Secretary** — Mr. G. M. Pearson VK5PE  
**Broadcasts** — 1825, 3590, 7095, 14175 kHz; 29.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

## WA:

**President** — Mr. L. A. Ball VK5AN  
**Secretary** — Mr. P. Savage VK6NCP  
**Broadcasts** — 3600, 7060, 14100, 14175 MHz, 52.858 and 2m (Ch. 2): 01.30Z.

## TAS:

**President** — Mr. I. Nicholls VK7ZZ  
**Secretary** — Mr. M. Hennessy VK7MG  
**Broadcasts** — 3570, 7130 (AM) kHz with relays on 2m Ch. 2 (5), Ch. 8 (N), Ch. 3 (NW), 28.56 (AM), 82.525 (F30), 144.1 (AM) and 435 (FM) kHz 09.30 EST.

## NT:

**President** — Dick Klose VK6ZDK  
**Vice-Pres.** — Barry Burns VK6BI  
**Secretary** — Graeme Challinor VK6GQ  
**Broadcasts** — Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow Morse transmission by VK6HA on 5.558 MHz at 1000Z almost every day.

## Postal information:

VK1 — P.O. Box 48, Canberra, 2600.  
VK2 — 14 Atchison St., Crown West, 2066 (Ph. (02) 43 5705 Tues & Thurs 10.00-14.00h).

VK3 — 412 Brunswick St., Fitzroy, 3066 (Ph. (03) 41 3535 Weekdays 10.00-15.00h).

VK4 — G.P.O. Box 638, Brisbane, 4001.

VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thabarnon Rd., Thabarnon (Ph. (08) 254 7442).

VK6 — G.P.O. Box N1002, Perth, 6001.

VK7 — P.O. Box 1010, Launceston, 7250.

VK8 — (Incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5788.

**Slow Morse transmissions** — most week-day evenings about 09.30Z onwards around 3550 kHz.

## VK QSL BUREAU

The following is the official list of VK QSL Bureaus, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 1173, Canberra, A.C.T. 2601.

VK2 — QSL Bureau, C/- Hunter Branch, P.O. Terahba, N.S.W. 2284.

VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.

VK4 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Saitleigh, Vic. 3204.

VK5 — QSL Officer, G.P.O. Box 538, Brisbane, Qld., 4001.

VK6 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5082.

VK8 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.

VK7 — QSL Bureau, G.P.O. Box 3710, Hobart, Tas. 7001.

VK8 — QSL Bureau, C/- VK6HA, P.O. Box 1418, Darwin, N.T. 5784.

VK9, 9 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

The WIA, mindful of the proximity of the WARC, has launched, in addition to members of the Institute and individual non-member amateurs, an appeal to those suppliers of amateur equipment advertising in "Amateur Radio", asking them to give us assistance towards bearing the financial burden of the Amateur Service WARC expenses.

The WIA has urged its members to support our advertisers. We are now asking them to support the Amateur Service's WARC effort. An effort aimed at preserving a future viable Amateur Service.

We are sure that direct representation at the Conference itself, and at all the preparatory meetings, is the most effective way to support the cause of Amateur Radio, and as a consequence have been deeply involved.

From experience I know that no matter how favourably disposed, and how well meaning any administration is, there is no substitute for an actual representative being present.

He can make sure the position as agreed by the Administration is pursued and extolled to the utmost.

I know that you as members of the WIA agree as can be seen by your financial backing and also your messages of support.

Again, it is this presence at the Conference, at meetings before the Conference, and probably at meetings after the Conference, that is the single most important factor in providing support for the Amateur Service.

Expenses have already been incurred with the participation of amateurs as members of the Australian delegation to the Special Preparatory Meeting of the CCIR.

It has been said that if Australia had not presented a paper, and if no amateur had been a member of its delegation, the satisfactory result obtained might well have been different.

It is therefore heartening to be able to report in this issue the early generous support of five of our advertisers.

Each month for the next twelve months, an updated list of our commercial advertising "WIA WARC Fund Supporters" will be published in "Amateur Radio".

I would also like to thank the Eastern and Mountain District Radio Club of Melbourne for their magnificent donation of \$1000 to WARC funds, made at their annual general meeting early in March.

It is support like this that makes those involved in preparations for the Conference feel that all those hours of work are being appreciated.

DAVID WARDLAW VK3ADW  
Federal President.

**QSP —**  
**FINANCE:**  
**ONE OF THE KEYS**  
**TO AMATEUR**  
**PARTICIPATION**  
**IN THE**  
**WARC**

# WIA (FEDERAL) DIRECTORY

## MEMBERS OF EXECUTIVE

Mr. D. A. Waddell VK3ADW, Federal President.  
Mr. P. A. Wolfenden VK3ZPA, Exec. Vice-Chairman.  
Mr. K. C. Seddon VK3ACS, Member.  
Mr. G. F. Scott VK3ZR, Member.  
Lt-Col. J. McL. Bennett VK3ZA, Member.  
Secretary: Peter B. Dodd VK3CIF.

**IARU LIAISON OFFICER AND  
IMMEDIATE PAST FEDERAL PRESIDENT**  
Mr. M. J. Owen VK3KI.

**INTRUDER WATCH CO-ORDINATOR**  
Mr. A. W. H. Chandler VK3LG.

**FEDERAL REPEATER SUB-COMMITTEE**  
Mr. K. C. Seddon VK3ACS, Chairman.  
Mr. K. W. Jewell VK3AKK.  
Mr. J. J. L. Martin VK3ZJG.  
Mr. P. B. Mill VK3ZPP.

**MANAGING EDITOR AND  
CHAIRMAN OF PUBLICATIONS COMMITTEE**  
Mr. B. Behlisch VK3UV.

**FEDERAL EDUCATION CO-ORDINATOR**  
Mr. G. F. Scott VK3ZR.

**FEDERAL HISTORIAN**  
Mr. G. M. Hull VK3ZS.

**FEDERAL CONTESTS MANAGER**  
Mr. W. A. Watkins VK2ZNV/NCU.

**FEDERAL AWARDS MANAGER**  
Mr. W. D. Verrall VK3WV.

**FEDERAL VHF/UHF ADVISORY COMMITTEE**  
Mr. P. A. Wolfenden VK3ZPA, Chairman.  
Mr. I. W. Cowan VK3ZDW.  
Mr. L. Jones, VK3BKF.\*

Mr. K. G. Malcolm VK3ZYK.  
Mr. J. J. L. Martin VK3ZJC.  
Mr. K. L. Phillips VK3AUD.  
Mr. W. M. Rice VK3ABP.

**FEDERAL RTTY COMMITTEE**  
Mr. N. Hawkins VK2MG, Chairman.  
Mr. P. B. Card VK2ZBX.  
Mr. R. E. Taylor VK2AOE.

**PROJECT ASERT COMMITTEE**  
Mr. R. C. Arnold VK3ZBR, Chairman.  
Mr. P. A. Wolfenden, VK3ZPA/NIB.  
Mr. K. G. McCracken VK2CAX.  
Mr. L. Jones VK3BKF.  
Mr. G. C. Brown VK3YGB.

**AMATEUR SATELLITES**  
Mr. R. C. Arnold VK3ZBD.

**FEDERAL WICEN CO-ORDINATOR**  
Mr. R. G. Henderson VK1RH.

**VK/ZL/O CONTEST MANAGER (VK)**  
Mr. N. R. Penfold VK8NE.

**FEDERAL VIDEO TAPE CO-ORDINATOR**  
Mr. J. F. Ingham VK5KG.

**FEDERAL COUNCILLOS**  
Please see main Directory.

**ALTERNATE FEDERAL COUNCILLORS**

VK1 — Mr. E. M. Howell VK1TH.  
VK2 — Mr. P. B. Card VK2ZBX.  
VK3 — Mr. J. A. Adcock VK3ACA.  
VK4 — Mr. D. T. Laurie VK4DT.  
VK5 — Mr. C. J. Hurl VK5HI.  
VK7 — Mr. P. D. Frith VK7PF.

## DONATIONS TO WIA WARC FUND

### LIST No. 1

The Executive wishes to acknowledge with grateful thanks the following donations:—

### EDUCATION PURPOSES

Dick Smith sale of equipment — net proceeds ..... \$3500.00

### WARC 79, from members

VK2ZQ	1	\$10
VK2ALZ	2	
VK2ZAA	2	
VK2PN	2	
VK2BYS	2	
Tumut and Dist. ARC	2	
Bundaberg ARC and some members	44	
Townsville ARC and members	139	
VK2BXI	25	
VK8ZBC	5	
VK3AJT	77	
VK2ARP	5	
VK2BUL	40	
VK2BWE	20	
VK2BOT	0.67	
VK3HE	10	
Y60132	2	
VK3DZ	10	
VK3NVP	7	
VK2KJ	10	

## ADVERTISERS' DONATIONS

The Federal President wishes to extend grateful thanks to our advertisers for generous donations towards the expenses of WARC representation

MARCH 1979	\$
Dick Smith Electronics	500
Vicom International	1000
Ball Electronics	500
Chinmade Electronics	100
Scalar Industries	50

These are entitled to the use of the WIA emblem and the words: "WARC Amateur Supporter" in their advertising displays.

## QSP

### PENSIONERS

Not many changes requested by members, when faced with paying annual subscriptions, cause problems in the Executive office. One particular change, however, is guaranteed to cause maximum trouble — and that is a request to change a member's grading to pensioner status at this time of the year. In the first place ONLY THE MEMBER'S DIVISION can approve a re-grading to pensioner. All such requests therefore have to be sent forward to the Division concerned. If there is any delay in approving the re-grade the member's name might be suppressed for his AR address label because of being unfinancial. Secondly, some problems can arise with recording payments and resulting credits or debts, when any re-grading is subsequently approved after the member had paid the full amount due prior to being re-graded. Best advice is to pay the pensioner rate and forthwith ask your Division for a re-grade.

"Visit sunny North Queensland and the

## FOURTH North Queensland Convention

HOSTED BY  
TOWNSVILLE  
AMATEUR  
RADIO  
CLUB

at TOWNSVILLE

15<sup>th</sup> & 16<sup>th</sup> SEPTEMBER, 1979

Contact TARC  
P O Box 964  
Townsville, Queensland 4810"

## 1979 CALL BOOK

Attention Secretaries of Divisions, Clubs, Repeater Groups, etc., etc.

The 1979 Australian Amateur Call Book is now being processed. If your group, club, etc., desires publicity in the 1979 Call Book, please forward relevant information to the Editor (Call Book), P.O. Box 2611W, Melbourne, Vic. 3001, by 30th April, 1979.

The following is required: Repeater information and up-dates, radio clubs, address and phone number of secretary, meeting dates, etc.

Material received after this date WILL NOT be included in the 1979 Call Book.

ACT NOW TO AVOID DISAPPOINTMENT.

Are you checking  
our bands for

## INTRUDERS

AND REPORTING SAME TO  
THE INTRUDER WATCH  
CO-ORDINATOR?

# WIANEWS

The meetings of Executive during February were taken up largely on 1979 Federal Convention business.

The following Agenda Items (reported very briefly) for this Convention had been received up to the time of writing this—  
**FROM VK4**

- (1) Executive to report on progress of negotiations for official morse tests at higher than 10 w.p.m.
- (2) Executive to ask P. and T. for 2 monthly morse code exams for all grades.
- (3) Executive to ask P. and T. for 3 monthly theory and Regs exams for all grades.
- (4) Executive to ask P. and T. for "out of hours" exams if the need arises.
- (5) Executive to report on TV Ch. 5A and 0 situations.

## FROM EXECUTIVE

- (1) Discuss draft regulations for affiliation of Australia-wide amateur organisations.
- (2) Discuss a standardised membership proposal form.
- (3) Discuss best methods of disbursing or using the \$3500 proceeds from Dick Smith's sale.
- (4) Discussions on WARC 79 progress and IARU matters.
- (5) Discuss 10 metre beacon situation.
- (6) Outstanding repeater items.
- (7) Examine the future of AR, Exec. office and related matters.
- (8) Discuss "Handbook" revision.
- (9) Discuss a Position Paper on the Fed. Constitution.

The Executive decided to invite the Minister for P. and T., Mr. A. A. Staley, to address the Convention. It was also decided to invite Mr. Ron Henderson VK1RH, the Federal WIGEN Co-ordinator, to attend the Convention as part of the Executive group.

## CHANNEL 5A

Letters from the Minister of P. and T. to other Parliamentarians towards the end of last year indicate that TV Ch. 5A "is currently allocated to four television stations and seven translators throughout Australia". He recognises that the use of this channel does not accord with international practice but its more extensive use in recent years was due to increasing demand for TV services and re-allocation arising out of FM broadcasting.

As far as the Institute is concerned this is 4 stations and 7 translators too many. The point was made by the Minister that interference to amateur radio operations had been able to be resolved by means of special technical arrangements. Nothing was said about the reverse situation and it is this point which is exercising the VHFAC as well as the post WARC 79 situation.

In his opening speech for the Queensland 1978 Convention in mid-October, Mr. D. Jull, M.P., Member for Bowman and Secretary of the Communication Committee in Federal Parliament, is reported as saying that the decision for Ch. 5A to be used in metropolitan areas has been completely shelved and won't happen. He is also reported as saying that a Departmental investigation is under way to eliminate those areas using Ch. 5A for translators in some country areas. In regard to Ch. 0 he did say that Melbourne Ch. 0 will soon be going to Ch. 10 and a similar announcement about Brisbane 0 was also expected. The former has now been verified correct.

Nothing was known about the use of UHF for TV except for ethnic television as set out in the Media Release 78/18 of 20th September, 1978.

For us it is fortunate that Ch. 5A affects some other services, not only the amateur service.

## JOINT COMMITTEE

A meeting of the Joint P. and T./WIA Committee was held on 21st February. An AOCF Theory exam syllabus was announced as ready for discussion with the Institute.

If this is to be adopted early, the expectation was that the August AOCF Theory exam would be multi-choice.

Revised sample papers of the multi-choice Regulations Exam and the Novice Theory exam were ready for incorporation in the new Handbook. Copies were handed to the WIA.

Clarification was given about corrections made in amateur morse sending exams. A total of 10 seconds extra is granted where a candidate properly corrects any errors. Indications are that there were some problems associated with the Novice morse exam in February.

The introduction of a lower licence fee for pensioners is still held up in Canberra. A review is to be undertaken of the Amateur Advisory Committee Service. An examination of the input material for the Call Book is being made. The WIA proposal for longer term (and it is hoped cheaper *pro rata*) amateur licences is still held up awaiting the new Radio Act which might possibly see the light of day later this year.

According to reports, the refusal to permit amateurs to use the 50-52 MHz portion of the 6m band outside Channel 0 areas stems directly from the broadcasting service.

Nothing further appears to have happened about the suggestions of controls over the acquisition by anyone of transmitting equipment although this question is understood to be in the hands of the Department of Business and Consumer Affairs which relates to the Trade Practices Commission. Without a visit by Royalty no consideration will be given to the use of the "AX" suffix by VKs during their 150th anniversary celebrations.

## SAA

The Institute is now represented by Mr. K. C. Seddon for the WIA, on the Draft Standard for Public Review DR78102 meetings. This relates to the siting of radiocommunication equipment.

## WARC 79 DONATIONS

A panel elsewhere in this issue commences the list of donations most gratefully received.

## LIFE MEMBERS

It is with great pleasure that news of Dr. David Wardlaw's Hon. Life Membership of the Victorian Division was received. Another very hard worker for the amateur cause was likewise deservedly honoured—Mr. Keith Rogel.

## MEETINGS

### EXECUTIVE

On 8th February—almost wholly on Federal Convention matters. EXECUTIVE, again on 22nd February—noted apology advertisement in local newspaper, discussions on Federal Treasurer vacancy, appeal for WARC79 donations from commerce, Convention Agenda Items, Joint Committee and Handbook matters, 1979 RD Contest opening address by President of IARU, CQIR Seminar in Sydney, inability to express an opinion without members' views on sale of alpha membership computer records, inserts into AR by mailing service.

### PUBLICATIONS COMMITTEE

On 6th February—continuing dearth of photographs, especially front cover photographs, discussions on production of Great Circle Maps, WIA stickers, new Log Books and other routine matters.

### PROJECT ASERT

Proceeding satisfactorily as reported elsewhere. Meetings held 18th January and 7th February. ■

## QSP

### PREFERENCES

Provisional allocations by the ITU have been made for Tuvalu as T2A-T2Z and German Democratic Republic Y2A-Y2Z—Radio Commun., February 1979

### AMATEUR RADIO DIRECTION FINDING CHAMPIONSHIPS

Want to join in the IARU R1 AR direction finding championships in Poland 3rd to 8th September next? Competitions will be held on two amateur

bands—3.5 MHz and 144 MHz. Rule 2.3 says "It is forbidden to give or take any assistance from or to any person including competitors, and also use of any means of transport—under pain of disqualification". Obviously an event for joggers. ■

# HAM

## RADIO SUPPLIERS

323 ELIZABETH STREET, MELBOURNE. PHONE 428 8136

**9" x 6" SPEAKERS** — brand new in cartons, 4 ohm impedance, ideal for car cassettes, radios, etc. **\$4.00 each**  
Postage \$1. 10 FOR \$30.00 — **BULK BUY.**  
**AMATEUR LOG BOOK** — \$2.00

### BULK STORE DISPOSALS

104 HIGHTHET ST., RICHMOND. PH. 428 8136 9 a.m. to 5 p.m.

**BRAND NEW UR 57 CO-AXIAL CABLE.** 75 ohm, 1/2" diam. 50c metre — \$40.00 100 metres.

**100 FT. ROLL BELL WIRE** — \$3.00 per Roll

**USA RECORDING TAPE** — POLYESTER. Size 7" 1800 \$5.95 1200 — \$5.00. Size 5" 1200 \$4.00 — 900 \$3.00

**SINGLE CORE OUTSIDE SHIELDED CABLE** 77.0076, 100 yard rolls — \$15.00 per Roll

**OMRON RELAY MK3 DC** 35 volts, 3 amp rating, 3 pole changeover. To operate on 220 volts DC or 110 volts DC Series Resistor 6.83 watts — \$5.00 each

**NEW MAGNAVOX 5375 SPEAKERS.** 5" x 3" 8 ohm, ideal for small extension speaker for communications equipment. \$1.95 each plus P&P

**NEW AWA-THORN TV TUNERS,** Type ENR5758. \$2 plus P&P

We also have a large range of **ELECTRONIC DISPOSALS EQUIPMENT**, including TRANSFORMERS, CABLE, TEST EQUIPMENT, TRANSMITTERS, METERS, etc.

You are invited to call in and inspect. No parking problems at 104 HIGHTHET STREET, RICHMOND. Phone 428 8136.

### BUSINESS FOR SALE

Owing to the passing of Mr. KEN MILLBOURN, this business is offered for sale by tender as a going concern. Long lease available. OFFERS WELCOME. Interested parties should contact for appointment:

Mr. TERRY MILLBOURN — MELBOURNE (03) 781 5431

## Meet the Professionals



Alpha 78 — Three 8874s, 2.4 KVA Hipersil Xtmr no tune up. And full OSK.



Alpha 76A — Two 8874 tubes Hipersil Xtmr. Alpha 76A — Three 8874 tubes. Alpha 76CA — Three 8874 tubes Hipersil Xtmr.



Alpha 770X — One 8877 Tube Two Thousand Watts PEP. Alpha 775X — Two 8877 Tubes /Commercial or direct Export Only.



Alpha 374A — Two 8874 tubes. No Tune Up. Broadband version of the 76A.

# ETO ALPHA

Australian Sales and Service from: **JAMES GOODGER**

**AUSTRALIAN SOUND AND SIGNAL RESEARCH**  
**PHONE: (02) 389 0428 and 389 7786**  
**AH: 36 7756**

11 Edgecliff Road, Bondi Junction, N.S.W. 2022 Australia

# IF YOUR SIGNAL'S GETTING PALER & PALER...

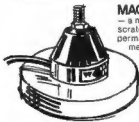
## Whip out your old whip and whip in a Scalar

Scalar M40 BR Ham mobile brings you back to 10-2. Scalar M40 is a resilient fibreglass whip designed for the 435 MHz band. 4dB gain, omnidirectional colinear. These antennas come with Scalar's UHF base or any of the three alternatives below. There's no better whip than Scalar. . . there ant' any!!

### 3 MORE WAYS TO SCREW ON A SCALAR

#### MAGNABASE

— a magnetic base, scratch-free. Instant or permanent grip on any flat metal surface.



#### TRUNK MOUNT

— special bracket holds it rock firm around the boot.



#### GUTTERGRIP

— screws on solid anywhere around the gutter of any vehicle.



Whip this coupon back Q.R.Q. to Scalar

Please send ☐ order form for Scalar M40 Ham Mobile with ☐ base. Or ☐ literature giving more information.  
Please print.

NAME .....

ADDRESS .....

STATE ..... POSTCODE .....



88's from SCALAR INDUSTRIES PTY. LTD.

20 Shelley Avenue, Kilsyth, Vic. 3137 (03) 725 9677

N.S.W. 20 The Strand, Penshurst, 2222 (02) 570 1788

QLD 969 Ann Street, Fortitude Valley, 4006 (07) 52 5994

Buy from Scalar. Vicom or your Ham Gear Retailer

# Sideband Electronics Sales

## DISTRIBUTORS OF COMMUNICATION TRANSCEIVERS

# NEW! SKY-BAND MOBILE ANTENNAS

THIS NEWLY DESIGNED UNIQUE MOBILE ANTENNA HELICALLY WOUND EXTRA HEAVY DUTY. SIX FEET LONG, AND CAN HANDLE UP TO 400 WATTS P.E.P.

### FEATURES:

Light weight.  
S.W.R. better than 1: 1.05 at resonance  
Covered with highest grade fireproof insulation  
Chrome base with 3/8 24 tpi. thread  
Available in colours, grey, white, blue, green  
burnt orange, brown and black.

### AVAILABLE:

SKY. 80M 3.5 Special Novice  
3.65  
SKY. 40M 7.06  
SKY. 20 14.150  
SKY. 15 21.100 and up.  
SKY. 10 28.5 and up.

### PRICE LIST:

SKY 80 6 feet long 3.5 MHz \$28  
SKY 40 6 feet long 7.060 \$26  
SKY 20 6 feet long 14.150 \$26  
SKY 15 6 feet long 21.100 \$25  
SKY 10 6 feet long 28.500 \$24  
Swivel mounts and chrome  
plated springs for all \$13

All Sky-Band Antennas are carefully designed and have been individually tested. High quality fibreglass rod, wound with optimum thickness of wire to keep weight down, but maintain High Q. An elegant design to those who only want the best. All antennas are factory tuned for the lowest portion of the desired band and can simply be trimmed for your chosen frequency. Yes it is all Australian made! You don't pay for large overheads, instead we use the best material available and offer a mobile antenna which will resonate to our frequencies, unlike the previous overseas designed antennas.

### ORDER NOW AND SPECIFY THE COLOUR YOU REQUIRE

New designs on the way similar to the famous 'Band Spanner' from 80-10 metres, tunable centre loaded, to be released soon.



SEND FOR A FREE CATALOGUE AND PRICE LIST



## SALES & SERVICE

24 KURRI ST., LOFTUS. N.S.W.  
P.O. BOX 184, SUTHERLAND. 2232

OPEN SATURDAYS TILL  
NOON. Phone: 521-7573

si

## CRYSTAL FILTERS · FILTER CRYSTALS · OSCILLATOR CRYSTALS SYNONYMOUS for QUALITY and ADVANCED TECHNOLOGY

Listed is our well-known series of 9 MHz crystal filters for SSB, AM, FM and CW applications.

Export inquiries welcomed



KVG

Filter Type	XF-9A	XF-9B	XF-9C	XF-9D	XF-9E	XF-9M	XF-9NB
Application	SSB Transmit	SSB Receive	AM	AM	FM	CW RTTY	CW RTTY
Number of Filter Crystals	5	8	8	8	8	4	8
Bandwidth (6 dB down)	2.5 kHz	2.4 kHz	3.75 kHz	5.0 kHz	12.0 kHz	0.5 kHz	0.5 kHz
Passband Ripple	< 1 dB	< 2 dB	< 2 dB	< 2 dB	< 2 dB	< 1 dB	< 0.5 dB
Insertion Loss	< 3 dB	< 3.5 dB	< 3.5 dB	< 3.5 dB	< 3.0 dB	< 5 dB	< 6.5 dB
Input-Output	Z <sub>0</sub>	500 Ω	500 Ω	500 Ω	1200 Ω	500 Ω	500 Ω
Termination	C <sub>t</sub>	30 pF	30 pF	30 pF	30 pF	30 pF	30 pF
Shape Factor	(6:50 dB) 1:7 (6:80 dB) 2:2	(6:60 dB) 1:8 (6:80 dB) 2:2	(6:60 dB) 1:8 (6:80 dB) 2:2	(6:60 dB) 1:8 (6:80 dB) 2:2	(6:60 dB) 1:8 (6:80 dB) 2:3	(6:40 dB) 2:5 (6:80 dB) 4:4	(6:60 dB) 2:2 (6:80 dB) 4:0
Ultimate Attenuation	> 45 dB	> 100 dB	> 100 dB	> 100 dB	> 90 dB	> 90 dB	> 90 dB
Price	<b>\$40-65</b>	<b>\$55-10</b>	<b>\$59-30</b>	<b>\$59-30</b>	<b>\$59-30</b>	<b>\$41-50</b>	<b>\$73-45</b>

In order to simplify matching, the input and output of the filters comprise tuned differential transformers with the "Common" connections internally connected to the metal case.

Registration Fee: \$3.00; Air Mail: 31c per % on. Shipping weights: Filters 2 oz. ea. Crystals 1/2 oz. ea. All Prices in U.S. Dollars.

### Matching Oscillator Crystals

XF900 Carrier 9000.0 kHz \$4.75  
XF901 USB 6990.5 kHz \$4.75  
XF902 LSB 9001.5 kHz \$4.75  
XF903 BFO 8999.0 kHz \$4.75  
F-06 Crystal Socket (HC25/u) .50

Oscillator Crystals 50 kHz through 150 MHz available to order. Parallel resonant (30 pF) to 20 MHz. Series resonant above 20 MHz. Write for quotation to your requirements (include mechanical size & frequency).

### Matching FM Crystals Discriminators for XF-9E

	Freq Dev	Shape	Price
XD-9-01	- 5 kHz	- 40 mV/kHz	\$27-80
XD-9-02	- 10 kHz	- 24 mV/kHz	\$27-80
XD-9-03	- 12 kHz	- 50 mV/kHz	\$27-80



# GETTING ON TO 160 METRES

Sam Voron VK2BVS

2 Griffith Ave., East Roseville, N.S.W. 2069

Remember the saying, "We will slick them on 200 metres and below — they will never get out of their backyards with that".

Well, that was in the early era of amateur radio — sometime around the 1910s — an era when amateurs were able to use the entire unwanted range of frequencies called the medium and short waves.

Here only 60 kHz remains on the only Medium Frequency allocation available to amateurs in Australia today. From 1.8 to 1.860 MHz — the lowest frequency available for amateur exploration — it's still possible to experience the thrills and conditions which many of our original amateurs encountered in days gone by.

## THE UNIQUE CHARACTERISTICS OF 160 METRES

Being the lowest frequency available for amateur use, the 1.8 MHz band is least affected by the ups and downs of the 11-year sunspot cycle which is responsible for the extensive variability common at higher frequencies.

Occasionally, when solar activity is particularly low, it may not be possible to contact stations within several hundred kilometres during the evening or night-time hours on the 80 metre band.

During such times, when skip zones exist on 80 metres, 160 metres becomes the only band available to maintain short-skip night-time contacts say between Sydney and Canberra.

1.8 MHz has been known to provide more effective communications within limestone caves than any other amateur band.

One of the most unique day-time aspects of 160 metres is the excellent ground-wave coverage which can be achieved using fairly low power. In the United Kingdom, even though power is restricted to 10 watts on AM and 25 2/3rd watts PEP on SSB, 160 metres (or "top band" as it's known) has become as popular for local day-time communicating as is the 2 metre band here in Australia.

A coverage up to 150 miles can be obtained with significantly less mobile flutter than one would experience on 2 metres VHF (direct). Groundwave coverage on 80 metres (i.e. the useful range of waves following earth's curvature) is only around 90 miles.

## 160 METRES OR AROUND THE WORLD

In Australia, we are lucky in that there exists no power restriction on 160 metres.

But we are unlucky in that we only have use of 60 kilohertz, whereas countries such as the United Kingdom and the United States have the use of 200 kHz from 1.8 MHz right up to 2 MHz.

New Zealanders only have 35 kHz from 1.803 to 1.813 MHz and from 1.875 to 1.900 MHz.

Would you believe the Japanese have just 5 kHz from 1.9075 to 1.9125 MHz?

Yes, — once you get involved in 160 metres — it is easy to understand why amateurs around the world are keen to retain even a few valuable kilohertz in this part of the radio spectrum.

## WHAT'S DIFFERENT ON 160m FROM THE OTHER BANDS?

Home-made equipment for one. Yes, on 160m it's possible to take your old mantle radio apart and build up your own transmitter and adjust your broadcast radio receiver to work on 160 metres.

AM for another. This reflects the sprinkling of home-made sets which operate on this band.

In Sydney small transistor radios are often modified to allow people to tune into the regular WIA 160 metre news broadcasts which can be heard twice each Sunday at 11 a.m. and 7.30 p.m. on 1.825 MHz. AM — so Short Wave, or should we say Medium Wave, listening is another aspect of the 160 metre scene.

The challenge of making up small 4 or 6 foot mobile antennas for 160 metres or trying to fit a 250 foot half-wave dipole in your backyard is another.

Facing the DX challenge as did Marconi — you'll have fun trying to work the United States in the early evenings or the Europeans just before sunrise.

How often do you find home-brewing, AM, active SWling, challenging DX existing today as it did in years gone by?

In many ways 160 is a fascinating remnant whose history goes back to the beginning of our hobby. When you get on to 160 you'll soon sense through your contacts as well as in the various overseas magazines that dedication which 160 metre enthusiasts share the world over.

## WHAT GEAR TO USE ON 160 METRES

Several multiband transceivers only cover 80 through to 10 metres. How can 160 metres be added?

For the mobile explorer where can one get a 12V transistorized 160m transceiver?

For the novice who just got his or her full amateur licence, what's the easiest way to get on to 160?

The answer . . .

## MODIFY THE DICK SMITH 80 METRE TRANSVERTER ON TO 160 METRES

The Dick Smith transverter was designed to be connected on to any CB radio, allowing the new novice an inexpensive way of getting on to the 80 metre band.

The transverter, which comes in the form of a kit, can be built up in a few hours and allows you to transmit or receive on 3.5 MHz with the use of any 27 MHz transceiver. Power output is 10 watts AM and 30 watts on SSB.

Lots of novices now have upgraded to a commercial multiband transceiver and are wondering what to do with that transverter? Easy, modify it for 160.

Need a mobile for 160? Build up the transverter!

Want to add 160 to your home station? Then you'll find that the transverter will work just as well from 10 metres as it does using an 11 metre source (simply change the crystal in the transverter).

## HOW DOES THE TRANSVERTER WORK?

As well as modifying this transverter for the 160 metre band, novices who have just got their full licence should be able to experiment with capacitor and coil values to add 40 and 20 metres.

Novices wanting some gear for 15 metres can likewise experiment to come up with an inexpensive set-up on that band.

Those wanting a small mobile on any of the HF bands may also find this information suggests possibilities.

The ultimate, one would imagine, would be to work all HF bands using this transverter to a simple CB unit — this would surely be the most inexpensive multiband transceiver out! Adding a VFO to the CB unit would make it comparable to commercial tuneable systems. Maybe home-brewing can still be an economic proposition!

# **THE 80 METRE RECEIVER SECTION OF THE TRANSVERTER**

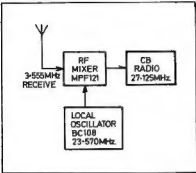


FIG. 1: Signals on the 3.5 MHz band are converted up to 27 MHz band on the Dick Smith 80 metre transverter.

In the mixer stage (see Fig. 1) (3.555 is added to 23.570 to produce the signal at 27.125 MHz). In this way it is possible to receive on 2.5 MHz by selecting different channels on the CB radio.

## **THE 80 METRE TRANSMITTER SECTION OF THE TRANSVERTER**

In the mixer stage (see Fig. 2) (27.125 is subtracted from 23.570 MHz to produce 3.555 MHz). In this way it is possible to transmit on 80 metre frequencies by selecting different channels on the CB radio.

### **MODIFICATION DETAILS FOR 160m**

To get the transverter on to 160 metres we must first change the crystal in the local oscillator.

The new crystal required is 25.3 MHz if you are using a CB transceiver.

**On Receive**  
 $1.825 + 25.3$  produces 27.125 MHz.

**On Transmit**  
 $27.125 - 25.3$  produces 1.825 MHz.

The new crystal required is 26.635 MHz if you are using a 23 channel 10 metre or multi band 80 to 10m transceiver on the 10 metre band tuned to 28.460 MHz.

**On Receive**  
 $1.825 + 26.635$  produces 28.460 MHz.

**On transmit**  
 $28.460 - 26.635$  produces 1.825 MHz.

The 5 channels obtained on 160 using CB or 10 metre channelized sets are:

23 channel numbering system	18 channel Australian CB No. system	160 metre Frequency MHz
12	8	1.805
13	9	1.815
14	10	1.825
15	11	1.835
16	12	1.855

This channel system is centred on 1825 kHz which is where most of the WIA broadcasts are conducted as well as being a popular listening and calling channel.

The transverter kit contains two printed circuit boards — the exciter/receiver board and the power amplifier board.

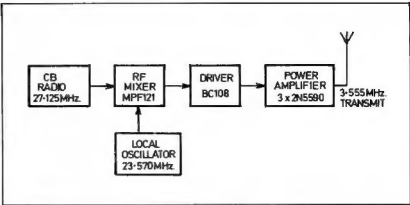


FIG. 2: 27 MHz is converted down to the 3.5 MHz band on the Dick Smith 80 metre transverter.

## **MODIFYING THE EXCITER/RECEIVER FOR 160 METRES**

(1) You have replaced the crystal. Tune oscillator coil L5. One or two coil turns can be removed if this is found necessary. (See Fig 3.)

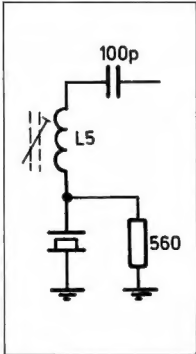


FIG. 3: Location of L5 in the Oscillator Circuit of the 80m Transverter.

## **MODIFYING THE RECEIVER FRONT END**

(2) Add 300 pF across the existing 330 pF capacitor which is part of the 0.0022 uF divider network located at the input of L2 and the MPF121 (TR1) mixer. (See Fig. 4.)

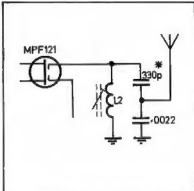


FIG. 4: Extending 330 pF Capacitor in the 80m transverter.

Set your receiver to 1825 kHz and, with a signal generator tuned to that frequency, adjust L2 and L1 (the 27 or 28 MHz receiver output coil) for maximum reading on your strength meter.

## **TUNING THE EXCITER**

(3) You should be able to adjust coils L4 and L3 for maximum power output as indicated by the current panel meter on the transverter. (See Fig. 5.)

No change was found necessary to the 470 pF capacitor associated with L3 or to the 330 pF capacitor associated with L4. These could be increased in value if your coils do not peak fully.

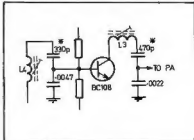


FIG. 5: Capacitors referred to above as located in the 80m transverter.

## MODIFYING THE POWER AMPLIFIER FOR 160 METRES

(4) Add one more turn to the primary of coil T4 (i.e. 7 turns instead of 6). This is the PA output toroid (See Fig 6.)

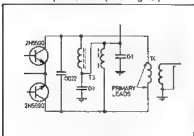


FIG. 6: Location of Coil T4 in the 80 metre transverter

## USING THE TRANSVERTER ON BOTH 80 AND 160 METRES

The modifications above will still permit you to operate on 80 metres.

An on-off switch with several rows of three contacts can be added to the front panel of the transverter just next to the manual transmit-receive switch.

With a flick of this switch you can switch in your new 160 metre local oscillator crystal, coil L2 and coil L3 both peaked for maximum performance on 160 metres. (See Fig. 7.) Both these coils can be mounted on tag strips just next to the original coils L2 and L3, which are tuned to 80 metres.

One end of each pair of coils and crystals is connected together. The other connections go to each end of the multi-contact switch. The common connection goes to the centre position on the switch.

Now you can operate on either 80 or 160 metres at the flick of a switch.

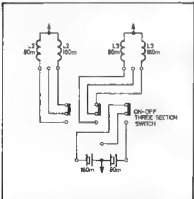
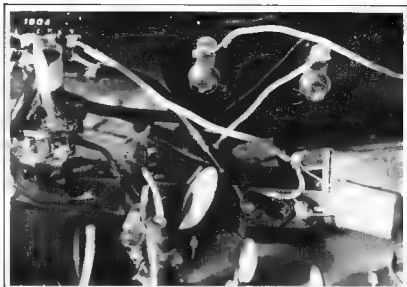


FIG 7: Connecting Coils L2, L3 and Crystals to allow Switch selection of either 160 or 80 metre operation.

Coil L4 can be tuned for maximum output on 160 metres. The output on 80 metres should be quite reasonable.



A close-up of the two crystals in the crystal oscillator circuit used to select 80 and 160 Mx on the switch contacts shown.



Front view of transceiver. Notice that 160 and 80 Mx can be selected at the flick of a switch

## RESULTS

For about a year I have been using a 23 channel Hygain V on 11 metres feeding the Dick Smith transverter modified on to 160 metres to relay the WIA broadcast around Sydney in the mornings and interstate in the evenings on AM.

It is certainly quite a reliable and exciting type of set-up. It is great not to have to say "the rig here is a 101 into a . . . etc.". I can always be assured of interesting contact on 160 when I say "the rig here is a modified CB set".

## ANTENNAS

It is easy to put up an antenna on 160 metres? What! You say you can't fit a half wave 250 foot length of wire in your backyard!

Well, that's what I thought, but when I made my first QSO with Queensland using an 80m dipole I thought "I wonder—if I only had a 1.8 MHz dipole—I wonder"

Make up the dipole and run it up and down trees, along your fence, don't worry about having ninety degree bends or turning sharply. My antenna is full of all of

these! It's only an average of 12 feet off the ground and lots of it lies on my house roof (actually 6 inches above it).

The results. Would you believe S6 in Canberra and Victoria and Queensland using only 1/2 a watt PEP! That is my consistent report at different times with different stations. And on full power it is an S9 (no worries!).

So I have discovered the secret why even though 160m is the only band in the UK with a severe power restriction it is so

popular. It's a matter of low power into a decent antenna equalling excellent coverage.

To adjust the SWR just take a foot at a time off both ends of the dipole. Using no balun I have consistently bettered 1.5 to 1.

#### 160 METRES AND TVI

There is no TVI or other problems. In fact using the TV isolation transformer in the December 1977 issue of AR on my TV set, I find that 160m is about the only band which won't give me any TVI problems

(even driving my linear to 400 watts PEP). Whereas, using the same set-up on 80m, I get TVI with only 5 watts of RF!

If you want to get away from TVI—

- (1) Try the AR Isolation transformer.
- (2) Move as far away from the TV frequencies as you can
- (3) Avoid the frequencies which resonate with the wire length interconnecting stereo gear
- (4) Join us down on 160m. It is as low as you can get riding that giant 160 metre long wave.

See you on the Medium Waves!

#### FOR MORE INFORMATION

See the article entitled "A solid state 27/3.5 MHz transverter" in Electronics Australia, April 1978.

## QSP

#### DIGITAL

"The mere mention of the word 'digital' promotes a picture of gear suggests state of the art and associated high sales. Unfortunately digital readout offers only greater precision as opposed to analog readout systems. The accuracy of a readout is determined by the scheme used for the measurement and the quality of the measurement equipment, not by the medium (digital or analog) itself. What good are five digits of readout if the accuracy is low enough that the last two digits don't mean anything?"

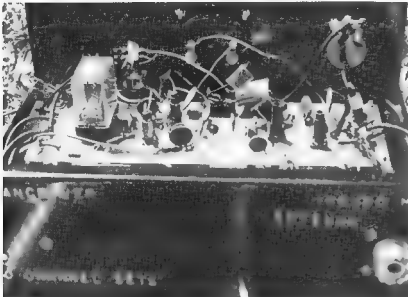
If a highly accurate means of measurement is employed in a digital readout system, a totally different situation exists. Full advantage of the greater readout precision can be taken, and readings "down to a gnat's eyebrow" are possible, with far greater ease than with an analog system." —From QST September 1978.

#### YU PREFIXES

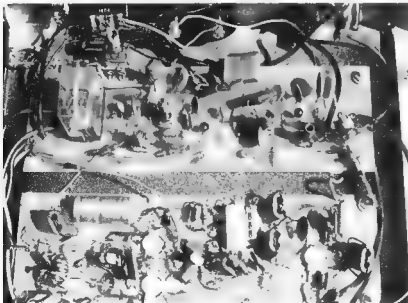
According to RI News of October the Yugoslav Administration has allocated YU and YT for regular use by amateurs and YZ, 4N and 4O for special occasions. YU1 is the prefix for the SFR of the Republic of Yugoslavia, YU2 for Slovenia, YU4 for Bosnia and Herzegovina, YU3 for Macedonia and YU8 for Montenegro. YU0 is allocated for SRJ (the amateur radio society) HQ and special stations. The autonomous provinces of Vojvodina and Kosovo use the YU1 prefix. Up till 1974 foreign visitors were allocated call signs in the YU7 series with three letter suffixes, commencing with the letter L. Now, foreign visitors use their own call signs with the addition of the prefix of the Republic in which they are operating. Suffixes AAA-KZZ are allocated to club stations.

#### THE Q CODE

Reading a short article in July 1978 QST triggered the thought of how we amateurs use the Q code. Yes, we do use many of the Q signals to indicate a condition rather than strict adherence to the rule book, which says that QRP? means "Shall decrease power" and QRM simply means "Decrease power". To use QRP means low power and QRM high power in much the same way that we have adapted the Q code for our own use in such examples as QRM meaning interference, QRN static and other noise pollution, QSO being a contact, QTH a location, QSP a message, QRT "closing down", QSY frequency change, QRZ call again, and so on. These are the day to day practical applications of the Q code which you could hear on any band from anywhere but such answers might not get you many marks in an exam question. ■



Rear view of transceiver. On the left hand side you simply connect any 16, 23 or 48 channel CB Txcrv. The 80 or 160 Mx antenna is connected to the right hand side.



Inside the 160/80 metre transverter. The top board contains the receiver and exciter circuit. The lower board contains the power amplifier circuit.

# A 10/11 METRE DIRECTION-FINDING LOOP AERIAL

Gil Sonas VK3AU  
30 Moore St., Box Hill South, 3128

The DF loop is a reasonably simple antenna system which exhibits a figure of eight pattern in the horizontal plane together with vertical polarisation. For receiving purposes it is not necessary to match the very low radiation resistance of the loop. The induced signal voltage is the principal interest and this may be maximised by resonating the loop and feeding the receiver via a high impedance amplifier.

The loop shown in Fig. 1 uses an FET push-pull amplifier, whose output is passed through push-pull emitter followers and a small ferrite balun. During early experiments a dual source FET stage was used, but this was discarded due to its inherent instability under certain tuning conditions. The output of this DF loop is very little less than for a full quarter wave whip.

The loop is constructed from a piece of PT29 75 ohm coaxial cable. The shield of the cable is split in the middle so as NOT to form a shorted turn. The shield forms a Faraday Screen as well as performing as a balanced tuning capacitor. Using 75 ohm coax with its lower capacitance as compared to 50 ohm coax enables a larger loop to be made.

The PT29 is 1/2 in. OD and is self supporting. To make the loop a length of 3 feet or 1 metre is obtained. The outer jacket is cut back 1 1/2 in. to 2 in. at each end and a 1 in. length is removed from

the centre of the cable. This 1 in. piece must be symmetrical about the middle of the length. Tin the exposed braid, taking care not to melt the insulation. When cool cut away the last inch of tinned braid and polythene insulation from each end of the cable, thus exposing the inner conductor. Rotate the cable under the knife when cutting so as to get a clean even cut. Mark the exact centre of the cable and cut around the circumference so as to remove the centre 1/16 in. of the braid. As the braid has been tinned a hacksaw may be used. Be careful not to cut too deeply into the insulation.

A piece of insulating tubing should be slid over the centre and taped in place so as to exclude moisture from the break in the sheath. The loop is now formed into a circle and put aside until the amplifier and its housing have been completed.

The amplifier may be built on either a printed circuit board or a scrap of veroboard or matrix board. The layout should be reasonably symmetrical as the device depends on symmetry to work well.

The loop is tuned by the electrostatic screen and a small trimmer capacitance to give a convenient peaking adjustment. Trimpot R3 in the source circuits of the push-pull amplifier is used to balance the operating point of the two FETs. Earlier versions used twin balanced FETs but the present system is more convenient. Adjust the drain voltages to equality.

The balun is relatively non-critical and a trifilar winding of 7 turns on a small Q2 toroid has been found to be satisfactory.

The amplifier must be mounted in a small metal or plastic box to protect it from the weather. Small plastic soap boxes, decastr boxes or plastic electrical junction boxes are all suitable. The loop is passed through two holes in opposite sides of the case, secured and connected to the amplifier.

When power is applied it should be possible to tune up on receiver noise or on a signal.

In use an attenuator between the loop and receiver is useful as it is necessary to reduce the signal considerably in the final stages of a hunt. Both RF and IF gain controls in the receiver will be found extremely useful.

A simple field strength meter can be connected to the loop for use on the final pedestrian part of a hidden transmitter hunt.

A protractor may be used for direction readout and should be mounted as accurately as possible. An accuracy of better than 5 degrees is possible — much better than is usually possible on 2 metres.

To obtain sense information and thus remove the ambiguity of the loop bearings a sense whip should be connected as shown in Fig. 2. This scheme is rather touchy on this frequency and the pattern tends to vary somewhat. The author prefers to take several bearings from different spots and plot them on a map.

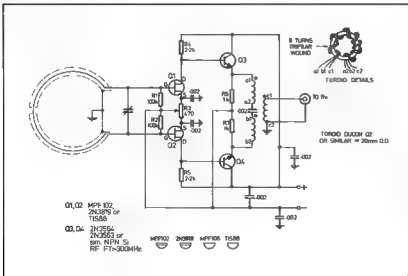


FIGURE 1

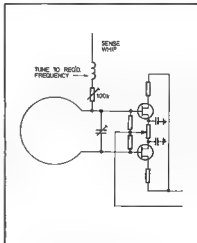


FIG. 2: Sense Coupling

# AN INEXPENSIVE AMSAT OSCAR 8 MODE 'J' RECEIVER PRE-AMPLIFIER

Joe Reisert W1JR

17 Mansfield Drive, Chalmers MA 01824

Many users of OSCAR 8 are discovering that their receiving converters lack sufficient sensitivity (have poor noise figures) to hear the Mode J signals. Most of this deficiency can be overcome with a low-noise pre-amplifier added ahead of the existing receiving converter. Such a unit, which is inexpensive, easy to build and will compete quite favourably with more expensive devices and circuits will be described herein.

devices was increased and the frequency response was shaped for a broad (350-450 MHz) peak response, but with essentially  $\phi$  dB gain at 144 MHz (the original circuit had almost a flat response from 20-450 MHz).

As in the original article, the pre-amplifier should be constructed with the components as shown. Failure to use the hot carrier diode (do not substitute germanium or silicon switching diodes) limiter will increase the noise figure and could lead to destruction from stray RF or electrical discharge. A simplified RF choke is also shown. The 5.0 pF output capacitor is tailored with the 20 ohm resistor and L2 for peak performance at 420-450 MHz and substitution of other values is not recommended if adequate gain and stability are to be attained.

Note the lead configuration on the MRF 901 and 904. Do not ground these devices with extremely short leads. The extra lead inductance as shown will improve stability and input VSWR and will be described in detail in a forthcoming article. Other transistors may be used, but the author will not guarantee similar performance. Don't forget the 0.1 MF bypass on the +12 volt line since it bypasses any stray RF (such as a local HF kW transmitter) which could lead to catastrophic burnout.

## CONSTRUCTION

The pre-amplifier should be built into a small (2½ in. x 1¼ in. x 1¼ in.) shielded box such as the Pomona 2417 type. Since extremely low noise figure is not required, BNC coaxial fittings are usable but "UHF" or "RCA Phone Jack" are undesirable. Use of a double-sided printed circuit board held to the box cover with the coax connectors is recommended for construction. Additional details are provided in the original reference.

## PERFORMANCE

From the response of those who have duplicated this pre-amplifier, the improvement in reception is overwhelming. Generally speaking, no additional filtering is required. However, if you live in a high RF environment such as UHF television transmitter, etc., an input filter may be required and the one in the original article is recommended. Also, never use a power supply which also serves as a source supply for relays since the spikes can destroy the transistor.

One final note: if correspondence with the author is required, an SASE or IRCs with a minimum of questions would be appreciated if an answer is desired.

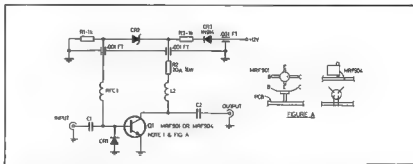
Ref. 1, "Ultra Low-noise UHF Pre-amplifier", by J. Reisert W1JAA, "Ham Radio Magazine", March 1975.

## PRE-AMPLIFIER DESCRIPTION

This article will not dwell on the AMSAT-OSCAR 8 Mode J output, etc. Suffice it to say that a reasonable 435 MHz antenna gain of 10-15 dB, a feedline loss of 2-3 dB maximum, and a noise figure of less than 3 dB should be sufficient for most operation. A lower noise figure will further improve performance, but a point will be reached when it will no longer be "cost-effective".

The pre-amplifier to be described is an inexpensive version of the "Ultra Low-noise UHF Pre-amplifier" (Ref. 1), a unit which has been used world-wide, especially on 70 cm EME. The original circuit used a \$46.00 transistor which is no longer available but yielded a 1.25 dB typical noise figure with 15-16 dB gain. By making a few small circuit changes, a less expensive transistor can be used. The Motorola MRF 904 costs approximately \$2.00 and in the modified circuit will yield a typical gain of 12 dB with a noise figure of 1.75 dB. The Motorola MRF 901 (and probably the BFR 81) now cost approximately \$1.50 and will yield a typical gain of 14 dB with a similar noise figure. The latter device used to cost between \$6.00 and \$9.00.

Looking at the circuit in Fig. 1, you will note the similarity to the original circuit: the zener diode and biasing, hot carrier diode input protection and the simple matching. The MRF 901 and MRF 904 transistors did not require any input inductor for noise figure matching. By using an output network as shown, the gain on these



## INEXPENSIVE 70 cm LOW-NOISE PRE-AMP WITH MRF901 OR MRF904

Gain: 12-14 dB typical.

Noise figure: 1.75  $\pm$  0.25 dB.

C1 — 50 pF dipped mica.

R2 — 20 ohm, ¼ watt.

C2 — 5.0 pF dipped mica.

CR1 — Hewlett Packard 5062-2810 or equivalent.

L1 — Deleted.

L2 — 3T No. 24 on 1/10 in. ID Space Wire

diameter.

RFC 1 — 0.47 uH Nytronics deinductor or 15T No. 32 AWG enamel covered copper wire on 1/10 in. ID Spaced Wire diameter.

## Notes:

1. Mount transistor as shown in Fig. A with leads just touching PC board (see text).

Reproduced from the "AMSAT News letter" June 1978.

# WICEN OPERATIONS IN SOUTH AUSTRALIA

Ian J Hunt VK5QX  
Vice-President/Federal Councillor,  
South Australian Division

The VK5 Division has, in common with the other States, for quite a number of years supported and encouraged the activities of the Wireless Institute Civil Emergency Network (WICEN).

This organisation is made up of volunteer amateur radio operators who are prepared to make available both their equipment and operating expertise for assistance in any emergency requiring radio communication which may arise in the community.

Needless to say, in implementing a scheme such as this a fair amount of organisation and training of members of the WICEN group is necessary if such a group is to be really useful. To this end training classes in such subjects as message handling procedures, map reading, observation, etc., are carried out from time to time. Regular weekly nets or "call-backs" are also instituted both on high frequency and very-high-frequency channels to keep members in touch and pass on items of interest.

## EXERCISES

Some operations within the WICEN group are carried out from home stations, however when considering the nature of emergencies which are likely to arise it becomes immediately evident that in many cases the requirement exists for portable and mobile operation.

To supplement the previously mentioned training field exercises are arranged as convenient.

Such exercises may take the form of simulated message handling, some times in conjunction with a State Emergency Service (SES) exercise, however it has been found, at least in this State, that members of WICEN react more favourably and feel that they are pursuing a more useful role if the exercise can be allied to a definite purpose.

To this end it has been possible to obtain permission from the authorities within the Postal and Telecommunications Department to conduct exercises as communications support for other deserving community activities such as "The Walk Against Want" and the "Good Neighbour Council" Australia Day Fair which occur annually.

## FOREST CAR RALLY

One major event for which we have been able to obtain permission to assist with communications as an exercise over the last two years is a "Forest Car Rally". This event, which covers an extremely large area, provides by its very nature probably the most valuable type of exercise which we can undertake as a WICEN exercise.

This Rally is organised and controlled in the motoring aspects by volunteers from a number of car club enthusiasts around Adelaide, and has come to be recognised as a major event on the sporting car calendar by the motoring public, including in it such well known competitors as Colin Bond, Peter Brock and other leading Australian Rally drivers, plus some overseas competitors. Although the event does receive some sponsorship from commercial organisations it is run on a non-profit basis, costs are kept to a minimum and in fact expenses in staging the events are usually only just covered by the sponsorship obtained. Thus we feel we can still assist such an activity and retain the recognised status of Amateur Radio as not becoming associated with a commercial venture.

The main reasons for the preparation of this article is, however, to describe for your interest the amateur radio activities associated with the support of the Forest Rally as the major item of WICEN exercises held in South Australia. However, at this stage a general description of the event is called for.

The Rally for 1978 covered three distinct stages or Divisions. Division 1, held on the Saturday during daylight hours, comprised a run for the competitors from the marshalling point at the Torrens Parade Ground in Adelaide through the north-eastern suburbs to the Mount Crawford Forest area approximately 50 kilometres north-east of the city. The distances actually travelled were of course greatly in excess of this. Once in the Forest area some extremely tricky and at times even hazardous road conditions were met by the competitors. Thus, whilst the main basis of the exercise was message handling practice by the passing of scoring information, it also provided a readily available communications network should some aspect of safety, accidents, etc., arise during the event. This year conditions were made extremely difficult due to some heavy falls of rain on the days preceding the Rally, resulting in slippery dirt roads, washaways, bogs and surface water on the competitors' routes.

Upon completion of Division 1, the cars,

such as were able, returned to the Torrens Parade Ground to then attempt the Second Division to be run throughout the night. This section covered a distance south from Adelaide down through the hills and valleys of the Le Flarieu Peninsula, where the cars again ran into extremely difficult conditions.

Division 3 of the Rally, which took place during the daylight hours of the Sunday, was virtually a repeat of Division 1 so as to "sort out" such of the competitors who may have made it through the first two Divisions without loss of points. This time though such an approach probably really wasn't necessary as none of the competitors could possibly have managed such a feat in the prevailing conditions.

So much for the automobile aspects of this event.

## COMMUNICATIONS NETWORK

It can be seen, however, that an event such as this made various demands on the WICEN organisation.

Firstly a communications network had to be set up to cover fairly large distances overall and thus requiring the use of both high-frequency and very-high-frequency stations. Secondly the commitment had to be made to operations extending continuously over a period well in excess of 24 hours. Both these requirements comprise an ideal situation for a major exercise. In some cases installation of equipment at control stations began on the Friday evening, and in the case of the Forest Control Station the operators



In caravan, Steve VK5ZSD at TTY machine. Note paper behind TTY.

camped on site for the whole of the weekend.

Now for a description of the networks involved.

Along the route, as is normal with this type of event, were various check points. On Division 1 there were 10 major check points at which radio communication was required. At these check points operators were stationed equipped with VHF mobile and portable radio to communicate with the net control station located in the Mount Crawford Forest.

The net control station was also equipped with HF radio to provide both a voice and radio-teletype link back to the main organising centre at the Torrens Parade Ground in Adelaide. Included amongst the equipment at this net control were a Model 14 keyboard re-perforator plus Model 15 page-printer for tape preparation, Model 15 page-printer, Model 14 transmitter-distributor, home brew ST6 demodulator with built-in CRO monitor and UART generator, TS520 transceiver with external VFO, and SB200 linear amplifier.



Ian VK5QX with VHF net control.

#### ANTENNAE

The antennae used were dipoles for 40 and 80 metres with a half-wave vertical antenna on top of one of the masts for 2 metre FM operation. This station was housed in a caravan provided at the site by the rally organisers. The tape preparation equipment was set up in the back of a "Land Cruiser" owned by one of the operators. Power for the station was provided by a 3.5 kVA petrol generator.

Sections of the Rally in Divisions 1 and 3 were to be televised. So as to co-ordinate the movement of competitors through the televised sections a special "TV" net was set up, with all stations using 2 metres FM. This net worked independently of other operations and utilized about five stations with their own co-ordinating control.

Scores from the checkpoints in the main Forest Net were relayed on VHF to the control station from each outlying point and passed by RTTY to the Torrens Parade Ground and in written form to the local Forest Scoreboard, whilst scores for the TV

stages were hand carried to the control station for transmission and also to the local scoreboard.

#### RAIN, CARS, DIRT ROADS

The operation worked smoothly with particularly excellent results on the RTTY link, nevertheless something adverse always seems to crop up despite the amount of organisation put in beforehand. This time it was not equipment failure, poor communication paths or anything like that. It was also nobody's fault either.

Due to the prior rain, the roads or tracks as they could more properly be called, began to show the effects of the many cars travelling over them. This resulted in many vehicles sliding out of control, becoming bogged and encountering many difficulties, with sections of the course eventually becoming absolutely impassable. One car on one of the TV sections actually turned over completely in the air, landed on its wheels and then kept going, apparently losing almost no time whatsoever. The navigator of said vehicle was heard later to claim that whilst in the air the driver apologised to him, "Sorry about this", and then went to change down in gear before they landed back down on their wheels again. Needless to say, the TV station people seemed delighted with that portion of coverage and replayed that incident time and time again.

The end result of all the problems caused by the wet conditions was to really test the flexibility of the WICEN network and operators. Routes had to be changed, sections closed, check points re-located and the whole system re-established, meantime continuing to provide coverage for the cars still moving. If you had really studied your map reading such capability became most useful during this turn of events.



General view of forest control site

#### TROUBLE SHOOTERS

Another net which proved most useful was also in operation. This comprised six mobile stations also working on 2 metre FM. Attached to each of these mobile units was a senior rally organiser. These stations were able to act as "trouble shooters" for the exercise and, with extreme care in many cases, to get into and out of locations which needed immediate attention by the organisers.

The southern section of the rally comprised a network of 10 control points manned by radio with the control station also set up for both HF RTTY and VHF FM back to the Parade Ground. In this particular instance some HF communications problems were encountered and the major part of the traffic was conducted on VHF.

This particular case showed up the advisability of using the best possible available antenna when participating in such an exercise. In other words, a full sized H dipole is much to be preferred to using a compromise antenna such as a loaded whip. It is with this type of incident we learn such things in practice which points up the fact that exercises such as this provide most important training aspects for personnel involved. Nevertheless in this instance flexibility, availability of alternate equipments and frequencies saved the day and the network achieved its purpose in impeccable fashion whilst dealing also with very similar problems due to the road conditions as experienced during Division 1, plus of course the fact that they had to do this throughout the hours of darkness.

Division 3 on the Sunday seemed to be virtually a repeat of Division 1, so not much more is left to be said on that subject, although the network was kept extremely busy with a very large volume of traffic being passed back through the Forest Control station.



Alex VK5CCT makes tape on keyboard re-perforator

#### MINOR CHANGES

A minor change in the Forest Network did however take place as a number of the check points for Division 3 were manned by Novice operators using the 80 metre band. This was catered for by having a net sub-control operating on both 80 and 2 metres to relay scores back to the main control station. Throughout all of Divisions 1 and 3 there were also two further stations involved. These stations were located at strategic points on the top of hills and were able to act as an "umbrella" to oversee all the nets, thus obviating problems of communication caused by any possible difficult terrain and locations which could crop up due to the hilly type topography of the forest area.

#### REPEATERS

As well as the networks mentioned some use was made of the two Adelaide VHF



repeaters on each day by net control stations for the purpose of directing operators to their check point positions and establishing the simplex nets. Adelaide Channel 8 repeater was also used throughout the night for the passing of scoring information for Division 2 back to the city.

All in all a large amount of message handling exercise was carried out and the operators obtained most valuable practice in this network operation and discipline and other general field operations which inevitably occur in an event such as this.

#### SUPERIOR COMMUNICATIONS

Whilst it may not be considered particularly "good form" to mention this fact, we were informed later by the Rally organisers that the communications provided by WICEN were definitely superior to the communications previously provided by a military service unit to support the event.

Thus generally speaking we can be proud of the efforts of our WICEN organisation in this State.

#### CONCLUSION

I hope that this description of one of our activities has been of interest to you.

Some of the available photographs produced with this article show part of the set up in the main Forest control station.

The large number of operators involved in this exercise precludes the publication of all the call signs and names of such operators. However, it would be most remiss of me if I did not acknowledge the great amount of planning preparation and organising work carried out by John Eastaugh VK5GY, who carried the major responsibility as an Assistant WICEN Co-ordinator for the organising of the exercise. Thanks, of course, are due to all the others who participated in any way.

I also feel sure that, should you wish to participate in WICEN operations within your own Division and join in the fun, at the same time making a worthwhile contribution to both your hobby and the community, your local WICEN Co-ordinator will be very pleased to hear from you.

It does not matter whether you are an HF, VHF, Novice operator or Associate member, you can still make your contribution in some way.

This is yet another worthwhile facet of Amateur Radio which does deserve your solid support. Remember, one day you may be in a position where you might have to handle an emergency, and WICEN can give the opportunity to be fully prepared to do so in an efficient manner. When confronted with such a situation the training you will have received in WICEN will be most valuable. ■

## SEANET — THE SOUTH-EAST ASIA AMATEUR RADIO NETWORK

The South-East Asia Radio Amateur Radio Network started in 1984 as an informal gathering on the air of amateur radio enthusiasts in the South-East Asia region for the camaraderie of talking with each other. Meeting daily on 14.320 MHz at 1200 GMT daily, the numbers of amateurs checking into the Net Control Station (NCS) range from Hawaii to East Africa, and from Japan to Australia.

After the South-East Asian amateurs have checked in with the NCS, amateurs throughout the world are given an opportunity to identify themselves to the NCS. Usually there are at least a few from the United States, South America or Europe checking in depending on propagation conditions. And the number of amateurs meeting on the net may range up to 150.

In addition to the ties of friendship fostered by meeting on the network, it also provides a means of testing equipment, contacting friends and if ever needed, emergency communications throughout this part of the world.

The first SEANET convention was initiated by that most indefatigable SEANET regular Big John Van Lear (9M2IR) with his letter of October 21, 1971, inviting the then-Net Controller Paddy Guneskara (457PB) to a meeting in Penang. Some 30 amateurs and guests attended the relaxed informal affair on December 30-31, 1971—January 1, 1972.

The affair was such a success that it was decided to hold another in Bangkok the following year. This was organised by the Radio Amateur Society in Thailand

and the number of attendees grew to nearly 100. And the third convention was held in Singapore in 1973 and hosted by the Singapore Amateur Radio Transmitting Society.

The amateur radio societies in the South-East Asia region have since taken turns to host this annual eyeball QSO—4th in Manila, 5th in Kuala Lumpur, 6th in Jakarta, 7th in Bangkok and once again it is the turn of the Singapore Amateur Radio Transmitting Society to play host to amateurs not only from this region but also from all over the world.

Because the main purpose of the annual meeting is to give participants a chance for eyeball QSOs, the programme is usually informal. New developments in communication systems, specific topics related to amateur radio, the communication needs of the region and the place of the radio amateur in meeting these needs are some of the topics on the agenda.

#### SEANET GUIDELINES

Here are some of the ways in which you, as a SEANET member, can assist the Net Control Station (NCS)

- **NOT** tuning up on net frequency after the net has been called to order, and until the net closes and the channel becomes free.
- **REFRAINING** from checking in under "emergency, medical, urgent or priority traffic" unless a situation really exists. Please do not check in at this time merely to make a contact with another station unless you have a very good reason to do so.
- **NOT** breaking in out of turn. Please

wait for your turn and if it has passed, then wait for "late station or late traffic". This does not apply to any emergency traffic you may have; then call "Break" or "Break, Break" for dire emergency. If you want to call a station that has just checked in, then call "Contact".

- **TRYING** to be on time for your turn. The order of check-ins can vary depending on the NCS and his or her location, but there is usually a set pattern.
- **RESTRICTING** your transmission to essentials only on the net frequency, such as RS, QRU, QRV or traffic as the case may be.
- **ANNOUNCING** at your check-in time if you wish to leave the frequency before the net closes.
- **CHECKING** back into the net if you fail to make contact with your assigned station on the assigned frequency. Then call "Check back".
- **CHECKING** back into the net and releasing the assigned frequency to NCS when your traffic is cleared. Say "333 clear", etc.
- **CALLING** "Relay" followed by your call sign to prevent doubling when relaying becomes necessary.
- **REFRAINING** from asking the NCS to hold your traffic for another day.
- **TRYING** to make all contacts on the net during net time with the help of the NCS only.

Thank you and happy check-ins.  
Reproduced from 1978 SEANET Convention Handbook. ■

# NOVICE NOTES

## BEHAVIORAL OBJECTIVES FOR THE NOVICE LICENSEE

The Novice should be able to

1. Operate legally
2. Tune a rig.
3. Carry on a QSO.
4. Put together a simple station.
5. Show an understanding of common problems.
6. Have some basic familiarity with terminology and equipment common to radio.

To do this he will need to understand:

1. Frequency bands.  
Frequency versus wavelength.  
Power.  
Power relationship with W.I.  
CW requirement.  
Identification rules and methods.  
Logging requirements.  
Definitions of control operator, etc.  
Definitions of prohibited practices, etc.
2. Meaning of controls.  
Meter reading and meaning.
3. International Morse Code.  
Abbreviations.  
Propagation effects.  
Finding a proper frequency.
4. Interconnections.  
Antennas and feedlines.  
SWR and measurement of relays and TR switches.  
Ground and importance of safety concerns.
5. Harmonic radiation and prevention.  
Key clicks and cures.  
Chirp.  
Block diagram of rigs.
6. Ohm's Law.  
R, C and L relationships.  
Resistors, capacitors, etc.  
Tubes and transistors.

Submitted by Graeme Scott VK3ZR,  
Federal Education Co-ordinator, from  
ARRL Club and Training Department. ■



## TEN COMMANDMENTS OF ELECTRONIC SAFETY

1. Beware of the lightning which lurks in undischarged capacitors, lest it cause thee to be bounded upon your backside in an ungentlemanly manner
2. Cause thou the switch which supplies large quantities of electrons to be opened and tagged, that thy days may be long on earth
3. Prove to thyself that all circuits that radiate and upon which thou workest are grounded, lest they lift thee up to a high-frequency potential and cause thee to radiate also.

4. Take care that thou use the proper method when thou takest the measure of high voltage, that it doth not incinerate both thee and the meter; for verily, thou hast no account number and can be replaced easily, the meter doth not have such, and shall bring great woe upon the supply department.
5. Tarry not amongst those that engage in intentional shocks, for they are surely non-believers and shall not be long in this world.
6. Take care that thou tamperest not with interlocks and safety equipment, for this shall incur the wrath of thy seniors, and unleash the fury of the safety officer upon thy head and shoulders.
7. Workest thou not with energised equipment; for if thou doest, thy mates shall surely be buying beers without thee, and thy place at the bar shall be filled by another.
8. Verily, verily, I say unto you: never service high voltage equipment alone, for electric cooking is a slothful process, and thou mightest sizzle in thine own fat for many hours until thy maker seeth fit to end thy misery and draw thee into HIS fold.
9. Trifle not with radioactive tubes and substances, lest thou commence to glow in the instruction books; they give the straight blurb and steer thee away from error.
10. Commit thou the words of the prophets to memory, which are written in the instruction books; they give the straight blurb and steer thee away from error.

From Zero Beat September 1978. ■



## LOOK BEFORE YOU LEAP

"Murphy" traps another when converting a CB transceiver to 10 metres!

Recently I decided to convert a Gemtronics 3325 CB transceiver down to 10 metres.

Being in the usual bit of a hurry, I consulted the rather scrappy instruction manual which provided a just readable circuit diagram, together with a comprehensive list of the crystal frequencies used.

The Gemtronics 3325 along with many of the older CB units is not a PLL system, it uses the frequency synthesising mixing system as described in the previous articles in AR of August and September 1978.

A perusal of the crystal frequency chart in the instruction leaflet enabled one to calculate the frequency of the new crystals that would be required.

Altogether I decided to replace the 6 x 11 MHz mixing crystals.

The frequencies listed are 11 000 MHz to 11 250 MHz in 50 kHz steps. These beat with 8 other crystals ranging from 8.1635 MHz to 8.2065 to arrive at the respective CB channels after taking into account the 7.8 MHz filter.

It was a rather simple matter to calculate the required crystal frequency to increase the operation to 10 metres.

A crystal of 12.335 MHz was ordered to replace the existing 11.000 MHz crystal as listed.

I calculated this would allow operation on 28.300, 28.310, 28.320 and 28.340 MHz. The new crystal duly arrived (at a cost of \$9.00) and was inserted into the relevant socket

Then Murphy struck! — I had expected the crystal just removed to read 11.000 MHz — but it didn't. It read 11.705 MHz.

The manufacturers had done it again! For reasons best known to themselves they had increased all of the 11 MHz mixing crystal frequencies by 705 kHz from that published.

Likewise, the 8 other mixing crystals had been reduced by the same amount. Naturally, the amendments were never altered in the instruction book!

A sure trap for young players — and the not so young as it appears.

I only have myself to blame.

This item is published to bring awareness to others of the misfortune that may befall you if you don't physically check the frequencies of the crystals in some of these CB sets before ordering new crystals.

The story has an almost happy ending in that I guess "Murphy" also worked in the reverse for me — I only ordered one (1) of the required crystals instead of 8.

Does anybody want to swap a 12.335 MHz crystal for one of 13.040 MHz?

B. Batho's VK3UV ■



## LOOKING BACK

Ern Rogers  
Rockdale, NSW

In 1933 on a visit to the home of a workmate I spied in a corner of his workshop a strange wireless set in an aluminium case. I knew it was a wireless set because three valves could plainly be seen. A vacant socket was also discernable. I asked my friend what kind of wireless it was. "It's a shortwave set," he said, "but it's no good. One of the valves has blown out and I can't get another anywhere."

In the next few weeks that wireless set was constantly on my mind. I could not help wondering what a shortwave set was and how it worked. Why couldn't my friend get the valve he needed? Had he really tried? In these few weeks my mate had been on holidays and as the time

approached for his return I found myself getting excited. I couldn't work out what happened to me. I didn't realise it then, but the bug had bitten me.

On the first night back I met George at the door. I didn't even ask him about his holiday. "Did you ever get a valve for that shortwave set?" I asked him.

"No," he replied, "they're unobtainable. You couldn't find one in all Sydney." "Why don't you sell it then?" I said. He looked at me in disbelief. "Who would buy the blank blank thing?" he asked. "I would," I answered rather too eagerly, "I'll give you a fiver for it."

And so the big deal was made. He agreed to drive over with it at the weekend. But I couldn't wait. I knocked at his

door early next day, fiver in hand. He asked me how I was going to get the set home. I said I would carry it. "You must be joking," said George. "Have a look at it." I spotted the little receiver on the bench, all cleaned up and shining brightly. I was puzzled by the weird contraption beside it. "That's the power supply," I was told. "It weighs a ton!" And I reckon it did. It consisted of a Philips B eliminator and a 4 volt filament transformer. I decided to let George bring it over at the week-end.

The set duly arrived. My mate explained it all to me. "It's a TRF (tuned radio frequency)," he said, "with a regenerative detector." He wished me luck in finding an E424. I set out early on Monday morn-

ing in my search. Eventually I found a little shop in George Street with the required valve. I was able to get a spare set of the other valves in the set—E424 RF, E424 detector, E415 first audio amplifier and 8406 output. I rushed home and plugged in the missing E424. Once I had learned the intricacies of the reaction control the stations rolled in. This was the beginning of a long period of enjoyment. It was a wonderful experience.

I know it is ridiculous, but I regard it as the finest set ever made. I was sorry to part with it—I sold it for a fiver. One of the E424s burnt out and I couldn't find a replacement.

From Westlakes RC Newsletter, February 1979. ■

## ANTENNA PERMITS (and other non-events) IN S-E ASIA

Dick Goslin VK3JV

*The writer recently spent a few weeks in Singapore and Indonesia. The following notes may be of interest to other amateurs considering a visit to these areas.*

### SINGAPORE

Together with a VK2 visiting Singapore for a Seant Convention, I spent a pleasant afternoon with Jim 9V1TE, communications officer at the US Embassy. Jim lives in an apartment provided by the US Government, and after prolonged negotiation with local authority received written permission to erect a quad on his penthouse roof. Some time later the authority telephoned to say that a gentleman (?) living nearby had objected to the antenna on aesthetic grounds and that it must be removed forthwith. In view of the permit issued to him, Jim naturally declined to do so. Following a further telephone call from the authority, a working party arrived with a notice of revocation, dismantled the quad and stacked the pieces neatly on Jim's balcony where they still lay at the time of my visit. Jim is now operating with a vertical and keeping his fingers crossed against further "QRM".

David Rankin VK3QV/9V1RH is fully occupied with settling into his new home with XYL and 13 month daughter Sheila, as well as with his increasing business commitments. Due to shortage of time on both sides, we were unable to meet each other on this occasion, but managed a short telephone contact before he left his office to supervise the finishing touches at an electronics exhibition in which his company had a number of stands. David and family hope to spend a few weeks in Melbourne in the near future, his first holiday

in VK-land since transferring to Singapore several years ago.

With no 2 metre facilities available in Singapore such as we enjoy here in Australia, it is not surprising that many amateurs have little knowledge, either personally or on air, of other operators who in some instances may be living only a relatively short distance away by our standards. Of some 50-60 licensed operators in the 225 square miles of Singapore Island, only a small number are active, and as a consequence there is very little marketing of amateur equipment. Except for replacement components such as PA valves, etc., not much is available "off the shelf". I found only one 10-160 metre rig for sale ex stock, and no information was forthcoming about its suitability for use in Australia. Price asked was only fractionally better than that advertised in VK for a similar transceiver.

### JAKARTA

About a month before starting our holiday, I had been working Lumbangal YB0WR on 20m. On learning that we would shortly be at Jakarta, he offered to meet us at the airport and spend an hour or so driving us around the city. I explained that as passengers en route to Bali we expected to be confined to the transit lounge and therefore unable to join him. However, we found after completing the usual formalities that we were free to wander as we pleased until shortly before the connecting flight was due to leave some 2½ hours later. As a request for Lumbangal to meet us at

such short notice could possibly embarrass him, we contented ourselves with a phone call to his office. Another non-event, but the transit arrangements at Jakarta may be of interest to amateurs passing through Halim Airport en route to other destinations in Indonesia. Lumbangal's address is Box 4802, Jakarta, and his office phone numbers are 41 4521 and 41 3747.

### BALI

No stations on the island of Bali are listed in the 1976 ARRL call book, but a chef at one of the hotels assured us that there are now five amateurs operating from the capital Denpasar, which is midway between the main holiday resorts of Kuta Beach and Sanur Beach, and that he knew one of them personally. This information was received only the day before we left so I was not able to follow it up. The chef is a daily listener to Radio Australia before commencing duty at 7 a.m. He has a better-than-average knowledge of English and attributes this to the assistance he receives from Australia's foreign language service.

### ACKNOWLEDGEMENT

Due to some flights being cancelled by the Indonesian authorities, we were required to leave Bali a day before schedule, and at very short notice. Through the co-operation of VK2HH and VK3NJ I was able to inform our family in time for them to meet us at Melbourne airport a day earlier than originally planned. Thank you, Harry and Ken—your assistance was greatly appreciated. ■

# Visiting Hong Kong

LET US ASSIST

WRITE FOR INFORMATION

## AMATEURS' PARADISE

Buy from  
Queensland's  
Stockist

### ENJOY HAM RADIO *NOW*

TS820S	\$139 Deposit
TS520S	\$89 Deposit
ICOM IC701	\$169 Deposit

ALL IN  
STOCK FOR  
IMMEDIATE  
DESPATCH

SOLE DISTRIBUTORS for Queensland of the new **BEN LINEAR AMPLIFIERS** — Models for all bands — 70-120 watts — all the one price, **\$159** — a beautiful unit.

Ask for details of our **EASY PAYMENTS PLAN** for all gear.

**121 NERANG STREET, SOUTHPORT, QUEENSLAND 4215**  
(Opp. Southport Hospital) **Telephone: (075) 32 2644**

## ALL BRANDS HF VHF UHF RECEIVERS ACCESSORIES

Tel. K 36 0606  
K 38 3774

### DELTA COMMUNICATION SERVICE LTD.

15 CUMBERLAND ROAD,  
KOWLOON-TONG,  
KOWLOON  
HONG KONG



**\$225**

**HF3-100L2 BI-LINEAR  
AMPLIFIER**

## ! 250w PEP IN YOUR CAR !

THE IDEAL  
COMBINATION

+



**\$579**

**TS-120V HF TRANSCEIVER**



## EMONA electronics

Head Office, Sales & Service: 23 JUDGE ST., RANDWICK 2031. Ph. 390 6378  
City Branch: ROOM 208/651 GEORGE ST., SYDNEY 2000. Ph. 212 4815  
Cable Address: EMONA Sydney. A.N. CALL 390 6378

**MAIL ORDERS:** Box K21, Haymarket  
NSW, 2000, Australia  
**WRITE, PHONE OR CALL IN!**



# TRIO



# KENWOOD

## DON'T BE FOOLED IN AUSTRALIA TRIO IS NOT ALWAYS KENWOOD

Although Trio-Kenwood (Australia) Pty Ltd is fully owned by Trio-Kenwood Corporation of Japan, which is the owner of both Trio and Kenwood brands, only Kenwood brand is used on communication equipment imported into Australia through this Australian subsidiary

Even though they may look identical, models carrying the Trio brand have been made specifically for the Japanese or U.K. markets and therefore may well not meet Australian electrical standards and may contain components not available in Australia. Such models are not imported by the manufacturer's Australian company and so are not eligible for warranty servicing by that company.

So beware — make sure your communication's rig is bought from an authorised Kenwood dealer, carries the Kenwood brand and is backed by the manufacturer owned importer Trio-Kenwood (Aust) Pty Ltd., 30 Whiting Street, Artarmon, N.S.W. 2064.

### TRIO-KENWOOD (AUSTRALIA) PTY. LTD.

31 Whiting Street, Artarmon, Sydney, N.S.W. 2064. Telephone (02) 438-1277

#### Interstate Distributors:

VIC: V COM IMPORTS PTY LTD (03) 699-6700 • QLD: MITCHELL RADIO CO (07) 57-6630

• S.A.&N.T.: INTERNATIONAL COMMUNICATIONS SYSTEMS PTY LTD (08) 47-3688 • W.A.: WILLIS TRADING CO (09) 321-7600

• TAS.: ADVANCE ELECTRONICS (003) 31-5688

**PLUS MANY OTHER REGIONAL OUTLETS THROUGHOUT AUSTRALIA**

TO COMPLEMENT OUR USUAL RANGE OF CRYSTALS

## BRIGHT STAR CRYSTALS

PTY.  
LTD.

35 EILEEN ROAD, CLAYTON, VIC., 3168

Phone: 546 5076 (Area Code 03)

Telex: AA 36004

CAN SUPPLY A RANGE OF —

- OSCILLATORS
- WIDE-BAND AMPLIFIERS
- TTL & CMOS  
DECADE COUNTERS
- ELECTRONIC CRYSTAL  
OVENS



#### INTERSTATE AGENTS:

Adelaide: ROGERS ELECTRONICS — Phone 42 6666

Brisbane: FRED HOE & SONS PTY LTD — Phone 47 4311

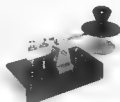
Perth: WESTEST — Phone 337 6393

Hobart: D LMOND INSTRUMENTS — Phone 47 9077

All Mail to be addressed to: P.O. BOX 42, SPRINGVALE 3171

## AT LAST!

**THE TYPE 610 BRITISH  
POST OFFICE designed  
MORSE CODE KEY**



There has never been a better designed Morse Code Key — SOLID, ROBUST and BEAUTIFULLY BALANCED

**\$25.00** (Post Paid)

"LEARNING THE MORSE CODE" —  
Cassette Album Training Course You  
will progress rapidly using this modern  
training system

**PRICE \$20** (Per Album of  
3 Cassettes)

**WILLIAM WILLIS & Co. Pty. Ltd.**

77 CANTERBURY ROAD, CANTERBURY, VIC 3216  
PHONE 836 0767

# SOME SPECIALS FROM BAIL ELECTRONIC SERVICES

Please note that some items are in limited quantity, so—don't delay, they won't last forever!

<b>FT-101E AC-DC HF Transceiver</b>	<b>\$795</b>
<b>FT-101E AC HF Transceiver</b>	<b>\$745</b>
<b>101E DC-DC Conv. Kit</b>	<b>\$70</b>

N.B. Our 101E Transceivers still include the superb "B" Model adjustable Noise Blanker PB 1292, exclusive to us! The N.B. that really does work. And for those with the PB 1582 N.B. we can supply the 1292 at \$42, plus postage \$1.50.

FT-101Z New model HF Transceiver, 160-10m 2 x 6146B PA's	799	Base adaptor for SRC 146A	23
FT-101 W/S Maintenance Manuals	\$27 plus P.P. \$2.00	Also available Rubber ant., optional hand m.c., mobile adaptor, Nicad batteries	
FT-7 HF Transceiver	\$389 (Yes, take a drink!)	70 T.V. Transverter 430 MHz (two only)	\$245
F-110 Solid State Linear			
FT-227R 2m FM Digital	\$339		
FL-2100B linear	1175		
FT-7B HF Transceiver 100W		<b>ROTATORS:</b>	
YC-7B Dig. adaptor for FT-7B	\$125	103 LBX \$165, 502 CXX \$265, 1103 MXX \$410, 201 AXX \$170, 1102 MXX \$379.	
FRG-7 Receiver	\$349		
Battery holder for FRG-7	\$10	<b>MAST CLAMPS:</b>	
LFC-2A Selective SSB filter for FRG-7	\$20	For 103 \$15, 502 \$29.50, 1102 and 1103 \$45.	
YC-500S Counter 500 MHz	\$499		
YC-500E Counter 500 MHz	\$656	<b>L.P. FILTERS:</b>	
YP-150 Dummy load/power meter	\$112	LP-7 \$6.50, TV-42 \$15, TV-476 \$10, FF-501DX \$39.	
SP-101B Ext. speaker for 101E			
CW filters for FT-101	\$50	<b>ANTENNAS:</b>	
FT-301 series CW, AM, RF Proc. filters	each \$45	TH6DXX \$285, TH3JR \$195, Hy-Quad \$237, VS-33 \$259, DX-33 \$235, DX-32 \$145, DX-34 \$265, VS-22 \$179, VS-20CL \$165, VS-11CM \$89, VS-41/80KR \$119, VS-RG \$29, 18V \$40, TD-1 \$68.	
FRG-7000 Dig. Receiver	\$845	(Note: The Hidaka "VS" beams inc balun)	
QTR-24 World Clock	\$35		
YH-55 Yaesu Headphones, 8 ohm	\$19	Hy-Gain BN-86 balun	\$28
YD-844 and YD-148 dual impedance desk mics., 600 ohm/50K ohms		Lightning Arrestors	\$4.95
RS Series Yaesu HF Gutter mount mobile Antennas—RSM/2 base inc. RSE2A stub mast, with Co-ax cable attached	\$29.90	<b>ANT. COUPLERS:</b>	
Resonators—RSL-3.5 \$22, RSL-7 \$21, RSL-14 \$20, RSL-21 \$19, RSL-28 \$19, RSL-145 (5/8 2m) \$24.		HC-75 \$65, HC-250 \$89, HC-500A \$119, Yaesu Couplers also stocked.	
6S6C P.A. Valve FT-101	\$11	<b>SWR METERS:</b>	
Other Yaesu valves also available		RS-101 \$7.50, SWR-40 \$15, SWR-200 dual \$75, FSJ-5 dual \$29.	
SRC-146A Standard (Japan) 2m hand-held 5 chan. 2W FM transceiver, built-in mic., spkr., "S" meter, inc. carrying case and crystals, to clear	1155	<b>MORSE KEYS:</b>	
		HK-708 \$14.99, HK-706 \$25, HK-808 \$85, Morse osc EKM-1A \$13.90. Practice set TC-701 \$19.50.	

The above list is not complete. There are many more items available. Contact us for your requirements.

Above prices (RR) inc. S.T. Freight is extra. Prices and specs. subject to change. 90 day warranty on sets excluding power valves and power transistors. Full service facilities and comprehensive range of spares.

All items new, ex stock at time of advert preparation except FRG-7 and FRG 7000, which are due into store approx. end of April.



**ELECTRONIC  
SERVICES**

60 Shannon Street,  
Box Hill North, Vic. 3129  
Phone: 89 2213

FRED BAIL VK3YB

JIM BAIL VK3ABA

Agents in all States and A.C.T.

# VHF PROPAGATION BETWEEN ALBANY AND ADELAIDE

C. J. Hurst VK5HI  
K. G. McCracken VK2CAX

This is a report of the analysis of a portion of the project ASERT data for January 1979. These data are singled out for immediate analysis since they demonstrate, very clearly, some phenomena of immediate practical importance to the VHF amateur.

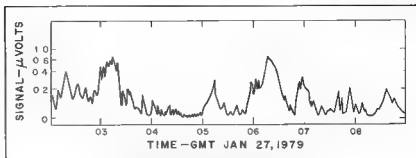


FIGURE 1: A copy of the rustrak record of the 144 MHz Albany beacon as received in Adelaide on 27-1-79. The wedge on 22-1-79 indicates the occurrence of a FM QSO between VK5 and VK6.

Figure 1 displays the signal strength of the 144 MHz Albany beacon, VK6RTW, as received at Adelaide on 27/1/79. The data was received at the QTH of VK5HI, using a TS.700A receiver, and a ten dB gain yagi at a height of 15 metres. The voltage across the signal strength meter of the TS.700A was recorded on a "rustrak" chart recorder, running at 25 mm per hour. The strongly fluctuating nature of the signal, with periodicities ranging from less than one minute to the order of an hour, is clearly seen.

Figure 2 is derived from the data such as Figure 1, and summarises the state of the Albany to Adelaide path at 144 MHz throughout the period 20/1/79 to 27/1/79. The solid histogram gives the peak signal received in Adelaide during each hour, while the graph plotted below the histogram gives the percentage of that hour that the circuit was inferred to be open for SSB operation (see below). Note that this latter graph is plotted upside down.

About 0700 GMT on 22/1/79 VK6OE worked VK5NX in Adelaide via the VK5 repeater, VK5RHO. The beacon signal on the recorder chart for that time was 0.17 uV RX input voltage. Assuming that this signal strength on the beacon recorder represented the threshold for a FM contact between Albany and Adelaide (this assumption will be discussed later), Figure 2 (and the data for 28/1/79) shows that the beacon exceeded this threshold during each of 44 different hours during

the nine day period under study. That is, we infer that the Albany to Adelaide path was open for FM for 20 per cent of the hours during this interval.

The path gain for SSB is some 4 dB greater than for FM on account of the narrower bandwidth. This suggests that 0.1 uV at the beacon receiver would be a suitable indicator of the threshold for SSB communication. Figure 2 shows that the beacon signal exceeded this threshold during 90 separate hours; that is, the path was open for SSB for 42 per cent of the hours in the 9 day interval under study. (Note, however, that for many of those hours the path was only open for 10 to 20 per cent of the time.)

Table 1 lists the number of hours in the total 9 day period for which the beacon signal exceeded 0.1, 0.17, 0.27, 0.42 and 0.63 uV in Adelaide (These rather strange values correspond to the major scale divisions on the rustrak chart.) It shows that the strongest signals, and the most prolonged openings occurred on the 21st, 22nd, 28th and 27th of January. Table 1 also shows that these four days were precisely those for which a major atmospheric

high was situated in the Great Australian Bight, between Albany and Adelaide.

The above correlation is well known to VHF operators. Perhaps of more interest is the fact that the path was open, briefly, on every other day in the period under study. Figure 2 shows that these openings, however, were very brief and tenuous. Consider 25/1/79 as an example. If the path were open during an hour, it was usually only for 10 to 20 per cent of the hour. The detailed chart records (similar to Figure 1) shows that this 10-20 per cent was made up from many short-lived intervals of from 1 to 2 minutes' duration, the signal barely exceeding the inferred SSB threshold on each occasion. The path was open, but only, just!

The data from Table 1 have been plotted in Figure 3 to demonstrate the dependence of "hours open" upon signal threshold. This graph provides great insight into the properties of VHF communication at these ranges, and is discussed in detail in the following paragraphs.

Table 2 interprets Figure 3 in terms of normal amateur practice. A less efficient receiving antenna, increased cable loss, reduced height gain, or an increased receiver noise figure could all reduce the reception gain below that used for these tests. Reductions of 3, 6 and 9 dB are

TABLE 1

The number of hours for each day in the study interval for which the peak signal exceeded five reference levels. "Yes" in the last row indicates the presence of a pressure high between Albany and Adelaide

Threshold (uV)	Day										SUM
	20	21	22	23	24	25	26	27	27		
0.1	1	18	12	6	6	9	16	21	1		90
0.17	1	9	4	1	1	2	7	19	0		44
0.27	0	4	1	1	0	0	4	15	0		25
0.42	0	2	0	0	0	0	3	12	0		17
0.63	0	0	0	0	0	0	0	2	0		2
Pressure High		Yes	Yes					Yes	Yes		

TABLE 2

Gain (dB) Reception	Transmission Gain		
	-6	0	+6
0	17%	42%	
-3	11%	26%	
-6	7%	17%	42%
-9	3%	11%	26%

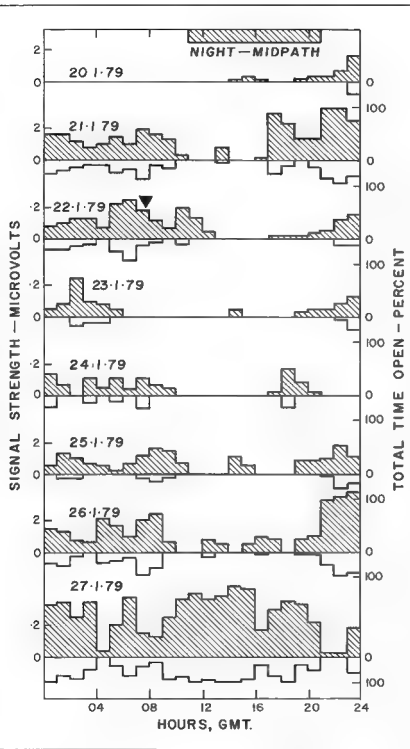


FIGURE 2: The peak signal strength for each hour, and the fraction of that hour for which the Albany-Adelaide path was inferred to be open for SSB.

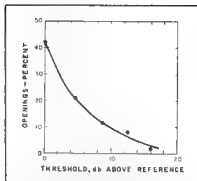


FIGURE 3: The manner in which the number of hours for which the Albany-Adelaide path was inferred to be open for SSB, against receiver threshold.

taken as representative of that which might be met in practice.

Transmission gain can vary because of greater, or less power, different antenna gain, increased cable loss, or different height gains. Gains of +6 dB and -6 dB are taken as indicative of current practice relative to the Albany beacon.

From Table 2 it is clear that the ability to communicate depends extremely strongly upon the gain parameters at each end of the path. Thus Table 2 shows that "normal practice" could have resulted in frequencies of communication varying between 3 per cent and in excess of 42 per cent during the study period. It is sobering to remember that it is relatively easy to "lose" 6 dB in a receiving installation (e.g. 2 dB in the antenna, 2 dB in the cable, and 2 dB due to a higher than optimum noise figure, each of which appears relatively trivial) and yet the overall penalty is great (17 per cent versus 42 per cent). Stated differently, a few dB improvement in either transmission or reception gain results in major improvements in communication efficiency.

The scientific facts in Figure 3 belie the common belief that "when the band is open on VHF, anything will get through".

An important goal of project ASERT will be to determine the extent to which the inferred performance figures in Figure 3 actually relate to the amateur experience. In doing this we will be able to correct any errors made in our assumed thresholds for FM and SSB communication. To this end, project ASERT requests that any SSB or FM operators that worked the Adelaide-Albany circuit on 144 MHz in the period 20-28/1/79, provide the details of your contacts to Project ASERT, Box 150, Toorak 3142. Please give date, time (GMT), station worked, mode, RS and your estimated power output and antenna type.

#### REFERENCE:

- (1) R. C. Arnold, "Amateur Radio", 47: No. 2, February (1979).



# THE IMPORTANCE OF AMATEUR REPRESENTATION AT WARC 1979

The following article is reprinted with acknowledgements to the EMDRC Radio Bulletin for March 1979 as the contents deserve wide publicity. The article was written by Jack O'Shannassy VK3SP.

"A short time before Christmas the Australian delegation to the Special Preparatory Meeting (SPM) of the World Administrative Radio Conference, 1979 (WARC), returned to Australia. The delegation had spent four weeks in Geneva, towards the end of the European autumn, and were glad to be back to the warmth of Australia. Under the leadership of the First Assistant Secretary P and T. Department (Mr Jim Wilkinson) the 15 man delegation had been more than busy putting the views of Australia as contributions towards the production of a Technical Report which will be a very important input document to the WARC which commences in September, 1979.

A notable 'first' for this delegation was the inclusion of an Amateur as a full time Delegate. Because of the difficulty of obtaining the necessary time for their normal occupations, the work was shared by two people—David Wardlaw and Michael Owen. In the past, Amateur involvement in international delegations of this nature has been confined to the production of briefing documents only, or, on rare occasions, to the presence of an Amateur as an Observer.

Representation of the Amateur Service in the Delegation by a full time Delegate on this occasion is due partly to the balanced outlook of Jim Wilkinson, who accepts as desirable the representation of non-Government frequency users and partly to the availability of Amateurs with the energy and ability of Michael Owen and David Wardlaw and, just as important, their availability to attend the many preparatory meetings and drafting sessions over a period of many months.

## TECHNICAL VIEWS IMPORTANT

It is tremendously important to have technical views which you wish to be used as the basis for decisions of WARC agreed to in the SPM and printed in its Report. It is only in the comparatively technical atmosphere of the SPM (which is not a frequency allocation conference) that technical arguments can be put and may be accepted in a more logical engineering climate.

At the WARC itself many other factors—particularly those of an economic social and political nature—are balanced against the purely technical considerations. The fact that the SPM Report contains almost all of the views which Australian Amateurs consider to be important



Michael Owen VK3MO, Jack O'Shannassy VK3SP and David Wardlaw VK3ADW discuss WARC problems. Photo by Bill Rose VK3ZMI

is a tribute to the preparatory work in Melbourne and the work in Geneva of our joint Delegates.

Although many nations at the Conference expressed an interest in the Amateur aspects of the SPM, in the event only three nations made a written input—USA, Canada and Australia. In almost every aspect of radio technical matters in the ITU arena the Australian input has a particular significance. When considering our small population this may seem surprising. The reason why the Australian view carries so much weight in Geneva is due to a combination of factors—some political, such as our non-alignment with any major political power, some technical, in that Australia despite our small population is regarded as technically advanced in communication technology generally, and some commercial, in that there is no large nationally supported radio manufacturing industry in this country.

In addition, because of our small population, our views are often accepted by other small nations, and, because of our low population density and large distances, our technical approach to communication problems generally is more allied to the problem of lesser developed nations. We also have the advantage of speaking English as our mother tongue. Although French is the language which prevails in the event of a dispute in the ITU, English is the main working language and the language used by the majority of nations attending.

## PREPARATORY WORK

Success at a conference such as the SPM requires more than active participation in

Geneva. It requires a large amount of preparatory work in Australia leading to the preparation of the official Australian Brief, and in particular, it requires the preparation of Input Documents which are clear, technically sound, generally acceptable to a wide range of nations, and worded so that their message is clear and unambiguous. In this regard it is significant to note that many of the agreements and recommendations contained in the Report of the SPM were taken almost word for word from the Australian input documents. This is a tribute not only to our delegates in Geneva but also to the dedicated group of Amateurs working behind the scenes who helped in the preparation of our input documents.

The main issues of concern to the Amateur Service in the SPM Report came under the following headings.

- The appreciation of the nature of the Amateur Service
- Recommendations concerning frequency bands below 30 MHz.
- Recommendations concerning frequency bands above 30 MHz.
- Recommendations concerning the Amateur Satellite Service.

The wording of the Report concerning the nature of the Amateur service is very much to our satisfaction. The recommendations concerning the needs of the Amateur Service for bands below 30 MHz contain recommendations which we considered of importance, e.g., additional frequency bands in the vicinity of 10, 18 and 24 MHz.

The only notable exception is the absence of a recommendation concerning the

proposed new low-frequency band in the vicinity of 160-190 kHz. The recommendations for frequency bands above 30 MHz in general agree with the Australian view, both as to bands and the desirability of wider bands in some cases which could be shared with the Radiolocation Service. So far as the Amateur Satellite Service is concerned, the recommendations are very close to our views.

Although the SPM is a 'preparatory meeting for WARC' this should not be taken to mean that it was small or unimportant. Over 750 delegates attended, representing 85 nations. Fifteen special organisations attended (including the IARU) and 30 private operating agencies were also represented. A total of 368 input documents were processed.

By comparison, the WARC will have representatives from about 140 administrations with more than 1000 Delegates. It is expected that there will be more than 1000 input documents which represent a tremendous amount of paper to be processed and information to be absorbed by the Delegates attending.

#### TEN WEEKS CONFERENCE

The WARC, which commences in September, runs for 10 weeks into November. This is a very long period for a conference of this nature, taking account of the climate in Geneva at that time of the year

and the very heavy pressures which will be exerted on the Delegates from smaller nations such as Australia. The timetable for conferences of this type is essentially set by the nations with the larger delegations, e.g., USA, UK, USSR and, as a result many simultaneous meetings result.

As the Conference progresses, the work tends to spread into the evening hours and occupy part or all of the weekends. These extended hours, together with the necessity for daily Delegation co-ordination meetings and the preparation of additional input documents, and the very cold climate (in Australian terms) combine to put a heavy load on all of the Australian delegates.

Whilst there is an excellent degree of co-operation and sharing of workload amongst the Australian Delegates, it is clear that the Amateur service case is best put by the one Delegate at WARC (David Wardlaw), the combination of long working hours and the cold climate raises the possibility of his being unavailable at some stage due to illness. It would be very desirable if the Amateur service could have a second representative to cover this possibility and also to help in the presentation of the Amateur case generally.

The availability of another Amateur Delegate however, involves a very considerable cost and raises the problem of finding a suitable person with the appropriate back-

ground and the necessary time to attend the preparatory meetings over a period of many months before the Conference, and whose business will allow him to be absent overseas for 10 or 11 weeks without salary.

#### TECHNICAL AGREEMENTS NECESSARY

Without the necessary technical agreements reached at the SPM, the Amateur Service would have an almost impossible task at the WARC. However, success at the SPM does not automatically mean success at the WARC. The comparatively calm technical climate of the SPM will be replaced by an actively political climate at the WARC and many nations who had little to say during the technical discussions at the SPM may be much more vocal at the WARC.

#### ACTIVE OPPOSITION

Although there is evidence of a more widespread support for the Amateur Service in recent times there are still quite a few countries which actively oppose the Amateur movement. There is no doubt that the spectrum available to Amateurs over the next 20 years will be dependent in no small measure on the efforts of the Amateur Delegate in the Australian Delegation to WARC 1979 and on the support he gets in the preparations for that Conference."

## EQUIPMENT REVIEW:

# THE ETO ALPHA 76 PR LINEAR AMPLIFIER

Ron Fisher VK3OM

This is the first time that a linear amplifier has been the subject of a review in this magazine and it was instigated when James Goodger of Australian Sound and Signal Research offered one of ETO's Alpha 76 PRs for our appraisal.

These amplifiers are made in the USA by Ehrhorn Technological Operations Inc. of Canon City, Colorado. ETO have built up quite a reputation over several years in the production of linears and the 76 PR is representative of their current production.

Naturally as these units are designed for use in the USA they are rated at power levels well above the Australian maximum output of 400 watts PEP. Before putting the 76 on air, I rang the local Radio Branch to check on the legality of using such a unit. It appears that so long as the PEP output is kept at 400 watts or below that all would be OK. However, it was stressed that the onus was on the amateur concerned to prove this to the department in the event of an inspection.

In view of this it might be a good idea to look at the specification of the Alpha 76 PR.

**Frequency Coverage:** 1.8-2.0 and 3-30 MHz.

**Plate Power Input:** 3kW PEP and typical RF output to 2kW PEP. CCS input 1 kW average or key down.

**Drive Power:** Nominal 100 watts PEP, 60 watts carrier.

**Input and Output Impedances:** Nominal 50 ohms resistive, unbalanced; VSWR 2:1 or less.

**Distortion:** Third order IM more than 30 dB below 1 kW PEP output.

**Harmonics:** More than 50 dB below mean fundamental frequency output.

**Tube Complement:** Three Eimac 8874s ceramic-metal grounded-grid triodes.

**Cooling:** Full-cabinet, ducted forced air; centrifugal blower.

**ALC:** Adjustable threshold, negative-going standard as shipped.

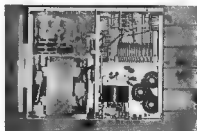
**Protection:** Primary fuses, plate overcurrent relay, AC and HV interlocks.

**Primary Power:** 240 volt at 10 amps or 120 volts at 20 amps nominal. 50/60 Hz.

**Size and Weight:** 7.5 in. high, 17 in. wide, 14.75 in. deep, and shipping weight 75 lb. Well so much for the figures, let's take a look at the amplifier both inside and out.



Alpha 76



What is inside the Alpha 76

First one point is that the 76 PR is a special model with three tubes in parallel. The standard 76 has two and is rated at a mere 2.5 kW PEP input. However, as the power supply is the same for both models the average power input remains the same.

It should be noted though that the particular 76 PR imported by Australian Sound and Signal Research is fitted with an extra

heavy duty power transformer and power supply section. However, apart from this information there is no specification on the difference between this and the standard supply.

Reference to the illustration reveals that the 76 PR is a handsome but large unit. Both the cabinet and front panel are of heavy plastic covered aluminium with a smooth ripple finish.

The row of push buttons under the meter select the various meter functions. These are High Voltage, Grid Current, Plate Current and Forward and Reflected Power. Under these again are the AC on switch and the SSB/CW TUNE switch. The AC switch is spring loaded and it is only necessary to push it down momentarily then release to lock in the AC switching relay in the power supply.

As most of the overall weight of the unit is in the power transformer, this is shipped in a separate package to the amplifier and is installed by the owner. The reason for this is obvious when the smallish box containing the transformer is picked up, and then immediately put down again to get a better grip. Installation of the transformer is, with the exception of the weight, an easy job. The side panel comes away with the removal of several screws, the transformer is bolted in and the electrical connections are completed with two pairs of multi-pin plastic connectors. The above procedure is fully explained in the excellent instruction book.

Interior layout and construction is quite superb. Liberal use of ceramic stand-offs, a large silver plated coil for the higher frequency bands with large toroids for the lower bands. It is interesting to note that the input is untuned but a balun is provided to give an optimum impedance match into the three 8874s. The centrifugal blower draws air from the outside around the power transformer, past the tubes and up through rubber tubes to three outlets in the top of the cabinet.

Both the tuning and loading controls are operated via smooth reduction drives and a 0-100 scale is provided for logging on each. It is interesting to note that the models sold in the United States no longer include the ten metre band. Apparently quite a large percentage of linears sold were going into the CB market, so the elimination of ten metres is calculated to overcome this.

On connecting the Alpha to the driving transceiver our first criticism was brought to light. The input connector is nothing more than a phono type socket. Why not a BNC or even another SO-239? As there is no way to lock a phono plug in this would have to be considered non-professional. I know that these connectors are common in American made gear for RF purposes but in a unit of this class is somewhat out of place.

Safety interlocks are provided on both the high tension and AC lines. Should the amplifier top cover be removed for in-

spection, the HT would immediately be shorted to ground and the primary AC voltage removed. Even the forgetful expert is therefore protected.

Plugging in the AC cord and switching on brings our second (and final) criticism. The blower system is very noisy. Not only that but there is also a degree of rumble which is transmitted into the desk or table on which the unit is sitting. Perhaps blower noise is a subjective thing that might bother some people more than others, but if I were using an Alpha I would want it on a separate table several feet from the operating position. At initial switch on, the meter is illuminated red and it is necessary to wait for the delay circuit in the power supply to operate before tune-up is commenced. Delay conclusion is signalled by the meter illumination turning green. A front panel switch selects either high or low voltage for tune-up CW or for SSB operation. For Australian conditions the low voltage setting should be used at all times. However, here comes the problem. Tune-up requires the amplifier to be run at an input of 1 kW and so the use of a dummy load is mandatory. An accurate RF power meter and a monitor oscilloscope are also required equipment.

#### SWITCHING

Switching the amplifier to "transmit" is by shunting the operate line to ground. This is normally done by a relay connection in the driving transceiver. In the non-transmit situation, the antenna is connected through for normal receiver operation.

Well, just how does one check out a 2 kW output linear at 400 watts output? Two things can be said right away. The amplifier runs stone cold at all times and distortion products are much further down than the specified —30 dB. This of course assumes that the exciter is clean.

However, when using modes other than SSB it is necessary to run the amplifier at a maximum of 150 watts input to comply with local regulations.

Unfortunately I do not have access to a spectrum analyzer, but reference to a QST review of January 1978 indicates that the third order distortion products are around 40 dB down on full PEP output so one can expect at least this figure at 400 watts. When one considers that some of the older transceivers using sweep tube finals are struggling to reach 20 dB down, some idea of the Alpha's performance can be seen. For our on-air tests the 76 PR was driven with a Kenwood TS-820 transceiver and the output taken via a Drake W-4 wattmeter and a Heath SB-610 monitor scope. A Heath Cantenna was available for high power testing. With everything running full on, just on 1700 watts carrier was delivered to the Cantenna. ETO make quite a point in their advertisements that you can put a brick on the key and hold the power output at full steam indefinitely. I am sure the 76 PR would take it. Under the Cantenna certainly would not. But the

same conditions PEP output as indicated on the scope was around the 2000 watt mark.

Provided that the drive level was kept constant, the output from the Alpha remained essentially constant from band to band.

Bringing things back to 400 watts for our on-air tests only requires the exciter to deliver about 30 watts PEP. A check with a local station showed that the 400 watt output signal was in fact slightly cleaner than the TS-820 running alone at full power. Perhaps a run down on the method of checking this might be of interest. With the TS-820 and a few other transceivers, it is possible to switch to the opposite sideband without changing frequency. This means that the strength of the unwanted sideband can be read on the "S" meter. Now it follows that the reading will be the product of two things, the unwanted sideband and the distortion products of the transmitter. Naturally, too, the sideband rejection of the receiver also comes into it. However, assuming a good receiver filter and transmitter sideband suppression of 40 dB or better, the thing that will show up is the distortion products of the transmitter. If the calibration of the receiver "S" meter is known then the distortion can be checked with fair accuracy.

The instruction manual is well written and contains all the information needed to use and possibly service the Alpha. The only thing missing is a printed circuit board layout in the power supply section.

#### SERVICE

In so far as service is concerned, I will quote from the covering letter received from James Goodger. "As a normal pre-delivery check we operate all our amplifiers on all bands 160-10 metres checking power output, making sure there are no problems after the journey from the USA. By doing this we have no problems with any amplifiers that we have sold. To hand is also a fully equipped workshop, and our 24 hour order number (02) 36 7756 ensures that an electronic engineer will answer any technical queries as soon as he starts work. Both our engineers are extremely familiar with Alpha. Dick Ehrhorn Products, as both have had considerable time in the factory with Dick, enabling them to often pinpoint problems over the phone."

Well, just where does an amplifier of this type fit into the Australian scene? Perhaps this is a bit like saying where does a Porsche sports car capable of 250 kilometres per hour fit into our restricted speed limits? In other words there is more to it than sheer speed in a car and perhaps power in a linear amplifier. However, there is also no doubt that both take expert handling. For further details on price and delivery, all enquiries should be addressed to James Lindis Goodger, c/o Australian Sound and Signal Research, GPO Box 5076, Sydney 2001, NSW, or telephone (02) 36 7756. ■

# "WOODPECKER" BALONEY OR WHAT?

Alf Chandler VK3LC  
Federal IW Co-ordinator

Although the USSR has indicated that the PO pulse signal has been minimised it still bugs all Amateurs throughout the world.

The screed published below has been received at this QTH from three separate sources:

"From the West Coast DX Bulletin, 14th February, 1979.

## THE RUSSIAN WOODPECKER

If you have not heard this one, you have not been on the air in the last year or two. Like a lot of other things, you try to live with it and wish it would go away but it seldom does. Maybe if you know a bit more it might help to tolerate the continuing burden. The following information compiled by W3 . . . "

The 'woodpecker' is a long range radar and the range can be estimated by noticing that the repetition corresponds to 25 w.p.m. CW dots. At this speed, the time from dot to dot is 96 mil. seconds and this means that the radar range is roughly 47,000,000 feet or 8950 miles. This 'on-the-air' estimate was done without instruments so it is probably a bit in error. If the actual design range was 15,000 km or 9320 miles, the error in the estimate would only be 4 per cent.

Presuming a 10 megawatt source and 18 dB of antenna gain, the ERP is 88 dBw. However, if you figure twenty metres at 1000 m.les, this immense signal is reduced by path loss to a mere 0.0008 watt.

This might make some think that a 1 watt jammer would have an advantage over the woodpecker of over 1000:1 but this is not correct. Not all of a jamming signal will be effective unless it is able to pass through the IF and Video filters of the radar. A constant carrier is not effective at all because it is rejected as a DC level by the AC coupled video circuitry of the radar.

However CW dots will get through, this assuming a rise time of 1 millisecond for amateur CW, and an additional 20 dB advantage is given back to the radar because of the mis-match in rise time, Video bandwidth and corner frequency. Notice that the CW dot jammer, even if only 1 watt, still has a 10 to 1 advantage. It might even be that a 100 watts or 1 kW would be even better.

There is some reason to believe that the above is true. For one thing the woodpecker is only heard on the phone bands where voice envelopes can be rejected by the radar video circuit. Also, when someone is sending CW dots at 25 w.p.m. the

woodpecker usually QSYs within five minutes.

Some who have studied the situation have noted that persistent CW sending on the woodpecker frequency has had them go QRT, one instance it lasting for about three weeks, returning with a new gimmick. The woodpecker showed with a frequency hopping mode. If problems developed, the woodpecker would hop to some other frequency on the amateur band.

However, the woodpecker must have an IF bandwidth of 20 kHz in order to process the 100 micro-second pulses that they transmit and thus there are not many such hops possible within one ham band. Observation tends to reinforce this thinking, only about eight operators sending dots at 25 w.p.m. spaced 20 to 30 kHz across a band would eliminate the advantage gained by the frequency-hopping technique.

One of a Gun! This is high level technical stuff and we did note that deliberate jamming might not be exactly kosher. One bright type came back with the information that he had heard on two metres that HSHHH was on from Baja Bophuthatswana and that he was calling him but having trouble counting all of those dots. A likely story!!

Is the above interesting to you? I found it so. From K6WVM.

Do you think the above baloney, as 'experts' in New Zealand seem to think, OR WHAT?

And, by the way, my QTH after the first week in May will be as follows:—

Alf Chandler VK3LC, 15 Point Avenue, Beaumaris 3193.

## AMATEUR SATELLITES

Bob Arnold VK3ZBB

### OSCAR 7

Still working on occasions, generally on Mode A unless commanded on to Mode B. Telemetry is garbled.

### OSCAR 8

Working well on all Modes. Mode J on Saturday, Sunday and Wednesday; Mode A at other times.

### RS

Telemetry working on both RS1 and 2.

My only record of the transponder being ON is orbit 1492 on 27 Feb.

RS2 power supply is having some difficulties due to excessive radiation effects.

## PHASE III

Scheduled for launch on 3rd March, 1980.

## AMSAT

Seems to have forgotten Australia — no newsletter received since June 1978 — so much for our interest and past record ORBIT PREDICTIONS — MAY 1979

OSCAR 8				RUSSIAN RS-1			
Date	Orb. No.	Eqx. Z	Eqx. +W	Orb. No.	Eqx. Z	Eqx. +W	
1	5817	0039	54	2235	0109	170	
2	5881	0044	56	2247	0114	173	
3	5905	0049	59	2259	0118	176	
4	5919	0054	59	2271	0123	178	
5	5933	0100	59	2283	0128	181	
6	5947	0105	60	2295	0132	184	
7	5961	0110	62	2307	0137	186	
8	5975	0115	63	2319	0142	189	
9	5989	0120	64	2331	0147	192	
10	6003	0125	66	2343	0151	195	
11	6017	0131	67	2355	0156	197	
12	6031	0136	68	2368	0200	200	
13	6045	0141	69	2379	0205	173	
14	6058	0003	45	2390	0210	178	
15	6072	0008	48	2402	0214	176	
16	6086	0013	47	2414	0219	181	
17	6100	0019	48	2426	0224	183	
18	6114	0024	50	2438	0229	195	
19	6128	0029	51	2450	0233	189	
20	6142	0034	53	2462	0238	192	
21	6156	0039	54	2474	0243	184	
22	6170	0044	55	2486	0247	197	
23	6184	0050	57	2498	0252	200	
24	6198	0055	58	2510	0257	203	
25	6212	0100	59	2522	0302	205	
26	6226	0105	61	2534	0306	208	
27	6240	0110	62	2546	0311	211	
28	6254	0115	63	2558	0316	213	
29	6268	0121	65	2570	0320	216	
30	6282	0126	68	2582	0325	219	
31	6296	0131	67	2594	0330	222	

RS 2 lags RS 1 by 30 minutes and 5°

# FREE!



## DICK SMITH'S 1979 JUMBO CATALOGUE

### FREE IN THE APRIL ISSUE OF ELECTRONICS AUSTRALIA

Yes! Dick Smith's new 1979 catalogue is coming. Even if you're not into electronics, you'll find a wealth of information and ideas: Hi-Fi, exotic TV games, home computers, marine radio, CB is amateur radio, experimenter's kits, tools. There's something for YOU.

### DON'T MISS OUT!

See your newsagent today and reserve your copy

# Sideband Electronics Sales

## TRIO KENWOOD COMMUNICATION CENTRE

Trio-Kenwood Amateur Equipment  
Trio-Kenwood Test Instruments  
B & K Precision Test Instruments.



### KENWOOD



#### KENWOOD PRODUCTS

TS 120 V all solid state transceiver 30 W PEP  
TS 520 S 160-10M Transceiver  
TS 820-S 160-10 M Transceiver  
R 820 S 160 M Transceiver  
R-820 Communications receiver  
TS 700 SP All mode 2M transceiver  
TS-800-A All mode transceiver  
TS-7000-A 2 M FM 25W Transceiver  
TR 7500 2 M FM 10 W transceiver  
TR 7600 2 M FM digital transceiver 800 CH  
TR 8300 70 CM FM Transceiver  
VB 2200-A Power booster for TR 2200  
VFO-30-G Remote VFO for TR-7200 TX-12 MHZ-RX 45 MHZ

#### OPTIONAL ACCESSORIES

VFO-120  
PS-20  
MB-100  
YK-88C  
SP-120

#### KENWOOD PRODUCTS

TR 7200-G 2 M FM 10 W Transceiver  
TR 7010 2 M SSB 10 W PEP Transceiver  
TV 502 2 M Transverter  
TV 506 6 M Transverter  
TL 922 2 KW PEP Line amplifier  
SP 8 Regulated Power supply 8 Amps  
VFO 520 S External VFO for 520-S  
VFO 820 External VFO for 820-S  
VFO 700 S External VFO for TS-700-SP  
SM 220 Station monitor  
BS-8 and BS 5 PAN adaptor  
SP 820 Deluxe Speaker consul  
SP 520 Speaker consul  
SP 70 Speaker consul for TS-700 & 600  
VOX-3 Vox unit for TS 700 & TS-600  
DS-1-A DC converter for 520-S & 820-S  
DG-5 External digital display TS-520-S  
AT 200 Antenna coupler  
MC 30 S Microphone 500 OHM  
MC 35 S Microphone 50 K OHM  
MC-10 Microphone 50 K OHM  
MC 50 Deluxe desk Microphone dual imp  
MC-2 Deluxe Ham clock  
YG 68 CW filter for TS-820  
YC-3395 CW filter for TS-520  
LA-30-A Lowpass filter  
HS 5 Headphone  
HS 4 Headphone  
RD-15 Dummy load 450 MHZ. 15 Watts  
RD-300 Dummy load 150 MHZ. 300 Watts

#### HY-GAIN ANTENNAS

12-AVQ 10-15-20M vertical 13 1/2' tall	\$50
18-AVT/WB 10-80M vertical 23' tall	\$125
TH6-DXK 10-15-20M senior 6 el yagi 24' boom	\$300
TH3-MK3 10-15-20M junior 3 el yagi 14' boom	\$240
TH3-JR 10-15-20M junior 3 el yagi 12' boom	\$175
204-BA 20M 4 el Tiger Array 26' boom	\$230
HY-QLAD 10-15-20M full size cubical quad	\$260
2M 5 el Yagi w/balun 6'3" boom	\$25
2M 8 el Yagi w/balun 12'5" boom	\$30
2M 14 el Yagi w/balun 15'6" boom	\$40
BN-86 Ba un 50 ohm 1 1/2'	\$20
BJ-5 Balun 50 ohm 1 1/2'	\$14

#### ANTENNAS SUITABLE FOR 10M

11M 5 el Yagi 17' boom	\$70
11M 1/2 wave G.P. w/3 radials	\$20
CLR 5/8 wave vert. w/4 radials 22'9 1/2" 11M	\$50
CLR-2 5/8 wave vert. w/3 radials 19'10" 11M	\$40

#### ROTATORS AND CABLE

KEK KR 400 rotator medium duty 28V AC	\$125
CDE HAM L11 rotator heavy duty	\$175
RG 8U Polyfoam Coax	80c per yard
RG 58U Coax	30c per yard
8 core rotator cable	65c per yard

#### SKY-BAND MOBILE HELICAL ANTENNAS

SKY 80 six feet long 3.5 Mhz	\$28
SKY 40 six feet long 7.060	\$26
SKY 20 six feet long 14.150	\$26
SKY 15 six feet long 21 100	\$25
SKY 10 six feet long 28 500	\$24

#### CRYSTAL FILTER, 9 MHz, similar to

FT-200 ones. With carrier crystals.	\$39
-------------------------------------	------

#### COAX CABLE CONNECTORS

PL-259  
SO 239 Chassis Mount  
Male to male joiner  
Female to female joiner  
Angle connector

#### Accessories

SWR 50A 3.5 - 150Mhz SWR meter	\$26
12VDC regulated supply	\$26
5M RG 58-U w/PL 259 one end	\$3
Bumper mount c/w/3/8" 24-thread ant. mount	\$7
Gutter mount c/w/3/8" 24-thread ant. mount	\$4 50

**SIDE-BAND ELECTRONICS SALES, 477-479 PACIFIC HIGHWAY,  
CROWS NEST. PHONE 438 4191.**

## KENWOOD AMATEUR RADIO EQUIPMENT

MAIL ORDERS: P.O. BOX 184, SUTHERLAND 2232.

PETER SCHULZ, VK2ZXL

Supplying the Enthusiast . . .

SELECTIVE RANGE OF AMATEUR EQUIPMENT

POPULAR BRANDS OF H.F. & V.H.F. TRANSCEIVERS, ANTENNAE, ROTATORS  
and MOST AMATEUR ACCESSORIES



SALES AND SERVICE

**graham e. stallard**

27 WHITE AVE. LOCKLEYS 5032  
SOUTH AUSTRALIA — PHONE 43 7981

VICOM DISTRIBUTOR FOR SOUTH AUSTRALIA

Please Phone, Call or Write for your requirements

# AMATEUR RADIO ACTION

IS THE NEW GENERATION AMATEUR MAGAZINE

## SUBSCRIBE NOW!

DON'T MISS OUT on your copy of Amateur Radio Action. There's only one way to be really sure that you will receive each and every copy of Amateur Radio Action — and that's by enrolling on our subscription lists. And it won't cost you any more than buying one at the news-agent. That's right, we are offering 12 issues

for only \$12 post free.

Simply fill out the coupon below, enclose a cheque/money order/postal order for \$12 and you will be put on our subscription list to receive the next 12 copies of AMATEUR RADIO ACTION through the post.

Please put me down for 12 editions of Amateur Radio Action, starting NOW!

RATES Within Australia and surface mail overseas:

\$12 00

Air mail to New Zealand and Papua New Guinea:

\$A29 40

Air Mail to USA and Europe: \$A46.20

Herewith enclosed cheque/postal note/money order to the value of: \$ .....

Name .....

Address .....

Postcode .....

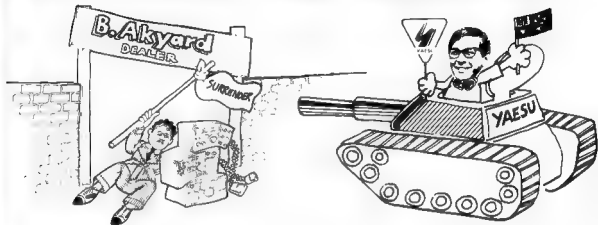
Post to: Amateur Radio Action Subscriptions, Box 628E, Melbourne 3001.



# DICK SMITH ENDS

★★ THE YAESU PRICE WAR ★★

***YOU REAP THE BENEFIT!***



Dick Smith Electronics will better any genuine price offered by anyone on Yaesu products.

YES! This means that we will sell you a fully guaranteed, genuine unit at a cheaper price — even if we are competing with a backyard importer who probably hasn't even got provision for warranty service.

**And you'll be buying from a fully Australian owned company - your one stop electronics shop who actively supports amateur radio!**

**HERE ARE OUR PRICES:** (WE'LL SEND ANY OF THESE TO ANYWHERE IN AUSTRALIA FOR \$6 EXTRA!)

FT-101E 80-10m HF transceiver	Cat D-2860	<b>\$789.00</b>
FT-301 Solid State HF transceiver	Cat D-2870	<b>\$795.00</b>
FT-7 Mobile HF transceiver	Cat D-2866	<b>\$375.00</b>
FT-7 2m FM trans with memorizer	Cat D-2890	<b>\$379.00</b>
FC-301 Antenna tuning unit	Cat D-2896	<b>\$219.00</b>
FL-2100B 1.2kW linear amplifier	Cat D-2546	<b>\$529.00</b>
FRG-7 Solid State HF Rcvr	Cat D-2850	<b>\$319.00</b>
FP-301 13.8V/20A supply	Cat D-2872	<b>\$169.00</b>

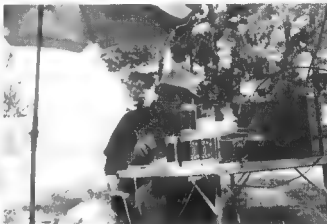
FT 101Z New HF transceiver	Cat D-2862	<b>\$775.00</b>
FT-901D Top class HF transceiver	Cat D-2854	<b>\$1349.00</b>
FT-227RA 2m FM scanning transceiver	Cat D-2891	<b>\$379.00</b>
CPU-2500 computerised 2m transceiver	Cat D-2889	<b>\$549.00</b>
FC-901 antenna tuning unit	Cat D-2855	<b>\$249.00</b>
FL-110 200W linear amplifier	Cat D-2854	<b>\$189.00</b>
FRG-7000 Digital HF rcvr	Cat D-2848	<b>\$599.00</b>
YC 500S 500MHz Freq Counter	Cat D-2892	<b>\$475.00</b>

*We believe that the prices above are better than any supplier in Australia. If you find someone cheaper for the same goods, tell us!*

*For us to better any price, simply show us the advertisement from any Australian company. After checking that they have stocks available at that price we will sell for a lower price. Offer remains open while present stocks last (approx. \$250,000 worth).*

# FIELD DAY — PICTORIAL ROUND-UP

The Publications Committee operated portable at Devil Bend Reservoir, Mornington Peninsula using bands 80m to 70 cm on phone and CW. Call sign used was VK3UV. Section entered: Multi-Op, 6 hours.



LEFT, 5 min. "smoko" — Yagis for 6, 2, 70 cm on GII VK3AUI's

ABOVE RIGHT, Bruce VK3UV on 40 Mx CW — motto "Points gained is proportional to 'innies' consumed"

LOWER LEFT "Smoko" continued — Ron VK3AFW still works on in Mazda.

LOWER RIGHT Ron VK3OM with FT7 enjoying the shade

Photos by Bill Rice VK3ABP

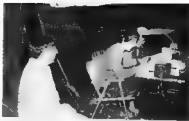




# WAGGA ARC FIELD DAY ACTIVITY

**JOHN MOYLE NATIONAL FIELD DAY WEEK-END**  
Mt. Granite, near Tumbarumba, on the edge of the Snowy Mountains.

Club activity started at the camp site after Friday lunch when the spearhead of the Wagga group got a flying start in the afternoon. Around 4 p.m. work commenced on a huge 80 metre antenna system that went for nearly a mile through the bush. Work on this antenna was interrupted many times by the necessity to quench the consistently high thirst. More of the party arrived just after tea and one or two tents were erected and the scene was set for the evening's social activities that always accompany the Wagga Club's field day activity. The social activities and general festivities continued all night into early Saturday morning. Saturday arrived with once again good weather, and the task of erecting the rest of the tent, aerial and generator system commenced. By this time around 16 club members were at the site. It was a real team effort in getting the wide range of HF and VHF aerials assembled. By 3 o'clock everyone was fed, all gear laid out, the log sheets ready and pencils sharpened. Activity was



Another group burning the midnight oil on 80 metres very late Saturday night. Left to right: Ron VK3BER, Andrew Hill and Bob Knight.



Frank VK3NRP working 20 metres during the early hours of Sunday morning.

very consistent on all HF bands during the week-end whilst 6 and 2 metres did appear to be a little disappointing due to lack of activity within the service range of Mt. Granitic. Our VHF operators did confirm that the bands were actually open for most of the week-end but there was just not sufficient participation from home stations and other field stations to ensure the level of activity so much hoped for during a large field day operation. However plenty of contacts were made and we don't recall any of our club participants saying that he was bored. It was a terrific week-end enhanced by a mixture of good operating conditions

on the air and, of equal importance to us, a really first class annual period that will be remembered for a long time. Let's hope we see more stations in the field next year.

Club Register WAGGA AMATEUR RADIO C.U.B.  
Meets last Fridays, Rescue Cubrooms, Bolton Street, Wagga.  
Club call signs VK2WG, VK2NWG and Repeater Ch 3 VK2RWG

Secretary's address: C/o PO Box 71, Kooragang, Wagga 2650

VK3SW

## QSP

**SOME COMMON DEFINITIONS FOR UNCOMMON PERSONS**

ADDER A snake in the grass.  
FULL ADDER As above, but not hungry any more.  
AND Sir.  
CR Substance from which metals are extracted.  
EXCLUSIVE OR Uranium.  
SH FT REGISTER Book to sign on and off at work.  
LAT'CH Opens doors.  
STORE Local shop

COUNTER Thing what shop assistant stands  
RING COUNTER 1 As above, but in jewellery store. 2 Dirty old man.  
TWISTED RING COUNTER A very dirty old man.  
DECODER DC3  
BUFFER French polisher.  
EXPANDER A panda that died.  
DRIVER Chauffeur.  
TRIGGER Ray Roger's horse.  
NAND Past tense of grandmother.

NOR What dogs do to bones.  
NOT Refer to Scout manual.  
CODE New brand of soft drink.  
CODE nasal virus.  
BINARY Two one-spaced canaries.  
CYTAL Everything pawed.  
FAN OUT Reg. oil air-conditioning.  
CHIP Thing eaten with fish.

From Department of Transport Airways Engineering Branch News Bulletin "Grapevine"

## THE PERFECT MOBILE RIG

**ATLAS 210X/215X — 5 BAND — 200 WATT**  
All Solid State HF SSB/CW Transceiver

STILL THE MOST POWERFUL MOBILE RIG ON THE MARKET  
PRICE WITH NOISE BLANKER INSTALLED \$452 INCLUDING TAX.  
GENERAL SPECIFICATIONS

FREQUENCY COVERAGE WITH INTERNAL VFO, 1800-2000 kHz (Model 215X only), 3500-4000 kHz, 7000-7500 kHz, 14,000-14,500 kHz, 21,000-21,500 kHz, 28,400-29,400 (Model 210X only). Note that 10m band may be easily owner adjusted to cover any 1000 kHz segment.

FREQUENCY CONTROL Highly stable VFO common to both receive and transmit modes. Less than 1 kHz drift during the first 30 minutes. Less than 100 Hz per hour after 30 min.

ALL SOLID STATE DESIGN 4 ICs, 18 transistors, 32 diodes.

MODES OF OPERATION SSB (USB, LSB), CW

MODULAR CONSTRUCTION With plug in PC boards

PLUG IN DESIGN Antenna, mike, extension speaker and power supply connections, etc., are automatically made when set is plugged into special mobile mount or AC power supply console.

POWER REQUIREMENTS 12-14V DC, 16 amps peak on transmit, 300-600 mA in receive

DIMENSIONS 24.1 cm wide, 8.9 cm high, 24.1 cm deep.

WEIGHT, 3.1 kg (6 lb 14 oz)

## ACCESSORIES

DMK — Plug in mobile mount for mobile and maritime mobile use — \$63  
DSC — Self-contained digital readout — \$238  
10XB — Self-contained external crystal oscillator for fixed channel operation on both inside and outside marine VFO band edges — \$85  
MTI — Mobile to mobile transformer. Changes base impedance of DCC to 50 ohms — \$45  
DCC — DC battery cable with plug. Not required if DMK is purchased — \$15  
200CS — 10/20W AC cordless power supply — \$210

OTHER ACCESSORIES AVAILABLE

## INTRODUCING TO AUSTRALIAN AMATEURS... THE UNIQUE WIDE RANGE WIRE TUNER

The Unique Wide Range Wire Tuner will provide a perfect match to nearly any single wire fed antenna system in the frequency range 1.7 MHz to 30 MHz. It provides the broadest tuning range of any antenna coupling device on the amateur market. At 6% in w/d, 5% in high and 12% in deep, it is compact in size and capable of handling in excess of 1500 watts of output power through its continuously variable LC combination. There are no gaps between tapped settings as found on most transmatch devices enabling any frequency within the specified range to be matched. It is therefore suitable for other than amateur services in the MF and HF spectrum.

It is ideal for portable and maritime mobile operation where space and/or lack of time precludes the use of various resonant antennas. Herb Johnson, President of Atlas Radio, uses one on his own yacht and recommends their use with Atlas equipment. Construction is of first quality materials throughout.

Write or phone for further information and full technical specifications.

PRICE: \$295 — SALES TAX AND DUTY PAID  
GUARANTEED FOR ONE YEAR.

## ALSO AVAILABLE:

Shure 404C PTT hand held mike \$35  
Shure desk mike

NOTE The Atlas 350XL will be in stock again as soon as it is back in production. It is temporarily out of production while Atlas concentrate on a new small model, thus increasing their range to three models.

**EDDIE ROOMS** B.Comm.(Melb.) VK3NRR/VZ??

Office: 12 BAILEY ST., BAIRNSDALE, VIC. 3875. (051) 52 2822

Melbourne Enquiries: (03) 547 5860

**FOR ATLAS AND SPECIALISING  
IN MARITIME MOBILE  
AMATEUR RADIO**

# LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher

The Editor  
Dear Sir,

Was to draw the attention of a certain club who is currently using the call sign VK3AHK on the 144 MHz band to the fact that, as the genuine owner of the call, I strongly object to this practice.

Therefore, I suggest to this person that (1) he steals someone else's call sign, or (2) obtains a P and T licence by passing an official examination thereby becoming legitimate (radio wise). If neither course appears to him the only other alternative I can suggest—without profanity—is that he persevere with the Pages where he will, no doubt, be enabled to discover the address, and utilise the services of, a competent taxidriver!

Yours faithfully,  
H O Kallias VK3AHK

The Editor  
Dear Sir,

**RNARS UPDATE**  
Further to the article by Don Walmsley G3HXL in the February edition of AR, we wish to advise of some recent changes in the Royal Naval Amateur Radio Society.

The call sign G4EOK has been revoked and the Amateur Radio Station on board HMS Belfast now operates under the more appropriate call sign of G4HMS. Whenever the vessel is open to the public the call sign of G2BRN is used.

HMS Mercury continues to be the Society Headquarters with the general call sign of G3BZU, but uses G2BRN on special occasions.

Current (February 1979) membership of the Royal Navy Amateur Radio Society stands at 1,251, which is spread world-wide. There are 28 members in Australia (all States represented) and 27 members in New Zealand.

The Australian members have recently commenced regular nets on 80 metres and we invite all radio amateurs with a maritime background to join our Society. The nets are as follows: SSB—every Thursday, 3.510 MHz  $\pm$  QRM, N/O—VK1CDR/VK2ALG CW—every Tuesday, 3.527 MHz  $\pm$  QRM, N/O—VK5MDR/VK2ALG.

We wish to stress that, although our Society name of Royal Naval Amateur Radio Society reflects its origin, membership is open to ALL amateurs with a sea-going background in the Australian branch (G4P), we have current serving members of the RAN together with retired members of the Royal Navy, Royal Australian Navy, Royal New Zealand Navy British, Australian and New Zealand Merchant Navies as well as civilians connected with the aforementioned services. All amateur membership is offered to former members of other naval/merchant navies, e.g. USN, Royal Netherlands Navy, Koninklijke etc.

Therefore, if any readers are at all connected with the sea and/or maritime life and would like to find out more about the Society they are invited to contact either Surgeon Rear-Admiral Jim Lloyd VK1CDR if ex-navy, or myself, Terry Clark VK2ALG, if ex-merchant navy. Both OK.

Yours faithfully,  
Terry Clark VK2ALG, RNARS 1198.

The Editor,  
Dear Sir,

I, too, would like to add my voice to the protest about the "Wooley Bum" group, although I hesitate to do so in the knowledge that by publicly such action may further their obscure cause.

There would appear to be no justification for any encouragement of a group with standards as low as this one. Surely amateur radio as a hobby has more than sufficient problems at this particular time without deliberately fostering a cancer within itself. I could be shown that the "Wooley Bum" group has intimidated anything, bettering our hobby it would be a different matter, but I have yet to see any evidence of this.

The most unfortunate aspect of this group's activities is that newcomers to the hobby and those outside it are likely to think that the activities of this isolated group are representative of Amateurs as a whole.

It is indeed regrettable that these misguided people cannot or will not make a more realistic contribution to our hobby. In the long term it is they who will have most to lose.

NAME AND ADDRESS SUPPLIED.

The Editor

Dear Sir,  
I read with interest the comments from the "RO" contest manager in February AR, page 80, about the woeful standard of log entries. Having been involved in a related area, I know only too well the problem he faces and he has my sympathy. However, I have also seen the other side of the coin, too, and there may be some excuse for the problem.

Currently with most contests and awards (but not all) there is usually no set application form or printed log sheets to record your entry. The contestant or applicant for an award can only follow the instructions given in the contest or award rules and improvise accordingly. This invariably leads to a broad spectrum of entry standards from the ultra neat that are a delight to receive down to the "dog's breakfast" which is quite common.

It shouldn't be too difficult to arrange a standard format for recording contest contacts and award applications that could be printed in pads of, say, 25 or 50 sheets. It could then be made a condition of entry that only entries made on such forms would be acceptable. By doing this the job of both the entrant and the organisers would be made easier. By using carbon paper between sheets an original and copy could be made in one go, thus saving the operator the chore of having to copy it into his log. One copy could simply be attached to the station log as a permanent record.

If the WIA could produce such forms at a reasonable cost and in a format compatible with log books I feel certain that this would encourage more people to submit logs for contests than do so presently. Surely one of the fundamental policies of the WIA should be to encourage on air activity in every possible way and this must achieve this end.

The use of lightweight airmail type paper would be desirable as the majority of entries have to go overseas and almost invariably airmail must be used to ensure arrival in time to make the closing dates. Even logs for the "VK-ZL" contest go to ZL every second year. Bulky "homebrew" forms can be very expensive to mail, even in small quantities.

Yours faithfully,  
Geoff Wilson VK3AKM,  
7 Norman Avenue, Frankston, Vic. 3108.

36 Rutland Street,  
Coorparoo 4151, Queensland.

The Editor,

Dear Sir,  
It is refreshing to read the reactions of the anonymous VK3N and the righteous wrath of our Rex Black VK2YA concerning the "Wooley Bum" certificate. With the exception of one point in Rex's letter, I support him in expressing disgust at the way in which a number of CB and ex-CB, now Novice licensees, pollute the channels, and also the Radio Press with their defiance of the commonly acceptable standards of operation and correspondence. However, I urge Rex and all others who feel cheated by the withdrawal of 27 MHz from amateur use to shed no more anger over the fact that a section of the spectrum designated for Industrial, medical and scientific radio transmissions, virtually the garbage heap of the whole spectrum, was withdrawn from the amateur service. The Australian delegation to the WARC in 1959 simply followed the lead given by the Federal Communications Commission of America who, obviously directed by great pressures applied in the political lobby by the electronics and equipment manufacturers, re-assigned the Citizens Band in the USA to 26.960 MHz, etc., from UHF, where at that time manufacturing techniques were not yet capable of producing hand held and mobile equipment in really compact and lightweight form.

of sufficient reliability, robustness and reasonably low cost, to meet the huge market of would-be users clamouring for them.

27 MHz equipment almost immediately available then was apparently seen as saleable in Australia to large scale farmers, station owners and the small boat industry, a huge expanding market in the right of the time. It followed that CB would be sold in huge quantities in Australia because of the mirror image of the American way of life which so many Australians prefer.

The immediate difficulty was not, however, the allocation of frequency since the US had the radar garage heap auction to offer. The public, non-technical, non-experimental would need service for the equipment they were buying back, that the major manufacturers of telecommunications and radio equipment in Australia had no desire to become involved in this new CB gimmick and thus the matter of service became of paramount importance.

From whence had the Establishment in WWI drawn its enlarged staff of skilled radio technicians and operators and inspectors? Mostly clerical and other without training. It indirectly from the amateur ranks, because so many competent amateurs were, and are today, employees of the telecommunications industry, the broadcasting industry, the radio and TV service industry, aviation, the marine radio servicing industry, etc., the list is extensive. Does it not follow that a vast way introducing CB 27 MHz into our country was to encourage the licensed amateur to operate on the garage heap band. Why, Mr. Dick Smith, in a recent broadcast feature over ABC sound only radio called "The 30 Four Four", said in a "CB radio was introduced into Australia for amateurs"—and so it was. Some amateurs duly saw possibilities of prosperity in this new thing. Practically all radio service firms, jumped on the band wagon. Employees of these firms (licensed amateurs) had little option but to obey their masters and insist and enforce the 27 MHz illegal to operate equipment at that time. The public, that is the interested section of the public, no reassured about the servicing problems, decided to take on CB. The results are too well known to merit further discussion.

Many amateurs, those not involved in the money making side of this rapidly expanding service industry, realise that the intrusion ( ) of CB into an amateur ( ) band.

Many clashed with CB, all the way to the member. Eventually, numerical pressure and the anti-establishment attitudes of an appreciable section of the Australian community urged on by powerful commercial banking in the political lobby, resulted in the removal of the amateur "PRIVILEGE" to operate in the Industrial, Medical and Scientific section of the spectrum.

So, Rex and others who have expressed regret about the loss of 27 MHz please reflect on my remarks and take heart, we are well rid of the unbearable 27 MHz situation into which we were precipitated by Australian importers and all those involved for several years in the import distribut on and installation and servicing of equipment which it was illegal to use. Now, as the WARC forecast, the radio amateur has inherited the onerous task of converting as many of the CB fraternity as possible to a low grade of amateur radio licensee. There are some bright spots in the picture. Many CBers are intelligent and highly respectable citizens who simply gave up all the advertising and rumours and adopted the trend. They were misled by the high pressure salesmanship of the day. Being intelligent and forward looking, they have now upgraded to WIA training and membership. Australian amateur radio is rapidly gaining renewed strength and may also in the near future show evidence of an increasing content of intellectual stability and academic attainments by those newer members. So then on balance, we have survived a crisis and are poised for a new era of amateur radio technique and cultural expansion. Who could be better? To return to the subject of your concern, a point concerning editorial responsibility arises. The Editor reserves the right to refuse to publish, or as he puts it, "to edit all material, including letters to the Editor and Hamads and reserves the right to refuse acceptance of any material WITHOUT SPECIFYING A REASON".

Why then, was the material submitted by Mr Ramsbottom published, apparently in its original form? Perhaps you could pursue these matters further through the good offices of the Federal Convention. Had he rejected the Woolley Bum article, we would not have been disturbed by it and have remained ignorant of its existence. Furthermore, had he exercised his editorial powers, neither you, I, or Mr Ramsbottom would ever have known why he rejected it. An editor's work is fraught with psychological pitfalls, so that what appears to him as a boisterous attempt at humour, albeit, on the coarse side, becomes an outrage to some readers and evokes guffaws of belly laughter from others. Again, I emphasize my dislike of coarse and material of the Woolley Bum species, and their usually over loud noises of those who enjoy it. However, those are some varieties of journalism which seek, covertly, to influence readers under the well known guise of doing good. We've all heard of the Do Gooders.

How about this gem from GTC, our Queensland pamphlet, of October 1978.

#### 'MAINLY FOR OLD TIMERS'

Lord thou knowest better than myself that I am growing older and I will some day be cold. Keep me from getting talkative and particularly from the latest habit of thinking I must say something on every occasion. Release me from the craving to try to straighten out everybody's affairs. Keep my mind free from the recital of endless details; give me wags to get to the point I ask for grace enough to listen to the tales of other plans. Help me to endure them with patience. But seal my lips on my own wishes—they are increasing and my love of rehearsing them is becoming sweeter as the years go by. Teach me the lesson that occasionally it is possible that I may be mistaken. Keep me reasonably sweet; a sour person is one of the crowning works of the devil. Make me thoughtful but not moody, helpful but not bossy. With my vast store of wisdom I seem a silly not to use it all—but Thou knowest Lord that I want a few friends at the end. . . .

From ANOTHER OT."

What better way of ability brainwashing a (presumably) unwelcome commentator or critic who attends meetings and exercises his right to air his views? Woolley Bum is a crude but harmless by comparison, but the apical from Another OT is not, by any means. You may notice the number of times I dressed ageing amateurs of great DX reputation who sit silent, lips firmly pressed together for almost all the time after reading such trash. These people ought to have something constructive to contribute, but we shall apparently never discover it, for they are but obeying the dictum laid down by ANOTHER OLD TIMER.

This kind of dictum is commonly displayed in waiting rooms of doctors, psychiatrists and mental hospitals. Nursing homes for the aged make use of it.

Thankfully, the average age of the radio amateur is descending towards its original age group of under 25, and Another OT will, if he still exists, find no application for his regressive talents. I have, I trust, drawn attention to the need for the Editors of the various WIA publications to take heed of Rex Black and others who have an interest in the quality of Amateur Radio humour.

Yours sincerely

George Harmer VK4XW

The Editor,

Dear Sir

At long last the RD contest results for 1978 have been published (AR February 1979). This seems a verily long time considering the number of entries.

I have noted the manager's comments re poor log keeping, but cannot agree that logs full of errors or without the mandatory cover page should ever be allowed.

A radio contest is a sport, and in all sports rules broken are subject to penalty. The log apocrypha clearly published before the contest, but page 48 left to the individual.

This is convenient as it allows cheap production for those who have access to various copying machines.

If the WIA could produce standard log sheets cheaply it would help contest managers, however,

it would be near impossible to get all contestants to use them.

Another point which is a bone of contention with a lot of regular contestants is the effect non-participants have on the final result.

I know the history of the contest is to encourage maximum participation in all VK call areas and I certainly try to support this concept.

I do not think it is a fair contest when non-starters (for whatever reason) have a major effect on the final score.

Could we please have a 1980s type re-think and try a scoring system based on participants' scores ONLY?

In closing I would like to thank the contest manager for a most enjoyable contest and trust those concerned with the above comments as constructive criticism and suggestions based on 20 years of RD contest participation.

M. N. O'Duill VK3WW,  
3 Maxwell Street, Lallor, Vic. 3078.

## CONTESTS

Wally Watkins VK2ZHW/NCU  
Box 1005, Orange 2800

### CONTEST CALENDAR

April

- 7-8 POLISH SP CW CONTEST
- 21-22 POLISH SP SSB CONTEST
- 21-22 COMMON MARKET DX CONTEST
- 28-29 DUTCH PACC CONTEST
- 28-29 SWISS H2B CONTEST
- 28-29 EA (SPANISH) KING TROPHY.

May

- 29-27 CO WW WPK CW CONTEST.

EA KING TROPHY

2002Z 29 April-3002Z 29 April, all HF bands, but only 20 hours operation allowed. RS plus 3 figure serial from 001. Contact only EA stations.

Log Date, GMT, station worked, serial numbers. Indicate multipliers.

Scoring 1 point per QSO, multiplier each Spanish province.

Final scores QSO points times multi.

Log to AR, PO Box 181, Cella, Barcelona, Catalunya, Espana.

Trophy and eight days in Spain to highest international score. Diploma for amateurs with over 50 contacts.

ITEM 300000

KV4AA managed to have 48,100 QSOs in 1978. That is an average of one every 11 minutes. VK2 desperately want him for the RD!

## ROSS HULL MEMORIAL

### CONTEST 78-79: RESULTS

(a) TX Open:	7 Day	48 Hour
VK2H2	558	120
VK4DO	2748	854
VK2ZBO	920	249
VK3AUJ	784	420
VK3AUJ	528	209
VK2YHG	—	208

(c) TX CW:

Nil entry.

(d) RX Open:

L6918 18 —

### CONTEST CHAMPION TROPHY

POINTS TO DATE

VK2H2—10 points, VK4DO—10 points, VK2ZBO—9 points, VK3AUJ—8 points, VK3AUJ—7 points, VK2YHG—6 points.

Points are subject to confirmation of WIA membership.

Other nominated contests for 1979 are John Mayne, Remembrance Day and the VK/ZL.

## WESTLAKES NOVICE CONTEST 1978: RESULTS

### SECTION N (Novices)

CLASS A (Phone)		
VK2NBZ	447	VK3NLP 144
VK2NYL	442	VK3NWC 85
VK2NAO	378	VK4NKL 456
VK2BV/P	323	VK4NKK 253
VK2NKJ	163	VK4JNV 99
VK2VBC	157	VK5NLC 180
VK2VAR	95	VK6NDZ 543*
VK2NCI	73	VK6NFS 384
VK2NBJ	47	VK5NCF 186
VK2NBS	45	VK7NSA 193
VK3NHL	416	VK7NFR 84

### CLASS B (CW)

No logs received

### CLASS C (Open)

VK2NVX	761*	VK3NTS 288
VK2NYF	470	VK3NPU 185
VK2NMAU/P	254	VK3NHR 101
VK2NNS	747	VK6NAY 354
VK3NHA	645	VK6NUN 205
VK3MTF	574	

### SECTION F (Full Call)

#### CLASS A (Phone)

VK2AHS	388	VK3BER 10
VK2BIO	378	VK4ARW 308
VK2BVY	208	VK4AYL 90
VK2BOS	180	VK4ACL 53
VK2BPL	94	VK5ABW 287
VK2AKH	68	VK2BZ 444*
VK2AKX	48	211B 419
VK3AVB	60	

#### CLASS B (CW)

VK3AXB 227

#### CLASS C (Open)

VK2GL	302	VK3KB 155
VK2IO	81	VK4AAR 380*
VK3BR	225	

### SECTION L (Listener)

#### CLASS A (Phone)

R Weston VK3	888*
Theresa VK4	88
R Daymon VK5	8
B. Entwistle VK9	5

#### CLASS B (CW)

E Treblcock VK5 28\*

#### CLASS C (Open)

M Hall VK2 453\*

### SECTION R (Club)

#### CLASS A (Phone)

VK2BHV 63\* VK3ARC 48

#### CLASS B (CW)

No logs received

#### CLASS C (Open)

VK2ATZ 855 VK5ALM 254

VK3BLU/P 791\*

\* Indicates winner in this Class.

### MAGPUBS

New subscription rate:

QST — for one year \$15.75

WIA

P.O. Box 150, Toorak, Vic. 3142

### QSP

#### QO PROCEDURE

REMEMBER, before calling CQ, first a clear frequency must be found. Listen carefully on the frequency for at least a minute, check that the frequencies either side are also clear. It is also recommended that you enquire if the frequency is in use. If this procedure were followed faithfully operating on the HF amateur bands would be much more enjoyable. It is also called 'good manners'. From QTC AR Supp. Feb. 1978.



# EMONA electronics

Head Office, Sales & Service: 23 JUDGE ST., RANDWICK 2031. Ph. 398 8376  
 City Branch: ROOM 201/061 GEORGE ST., SYDNEY 2000. Ph. 212 4815  
 Cable Address: EMONA Sydney. A.M. CALL 398 8376

The great evolution of

## DenTron

power machines!



\$1399

### DTR 2000 L — 2 kW AMPLIFIER

The ultimate in precision linear amplifiers from DenTron. Features range from a Broad-band proven 8877 tube with a continuous duty built-in power supply with a vacuum impregnated power transformer. Cooling is EIMAC specification forced air, through a pressurized chimney and chamber. Dual metering is provided for plate voltage and current monitoring, along with front panel switching of transformer secondary taps and linear bypass. Compatible with most exciters. These amplifiers have been tested and proven in every imaginable situation folks could put them through, from rare DXpeditions to medical research labs. Not to mention hamshacks the world over.

#### SPECIFICATIONS

- Freq. Ranges: 30-160 metres
- Modes: USB, LSB, CW, RTTY, SSTV
- Power Requirements: 22A/117V AC 50/60Hz
- RF Drive Power: 125W max., and 65W RMS max. for 1 kW DC input

- DC Plate Voltage: 550 (idle + 2500V approx.) CW idle + 1300V approx.
- Duty Cycle: 100% at full power
- Input Impedance: 50 ohms nom.
- Input VSWR: 1.5 to 1 average
- Output Impedance: 50 ohms nom.
- Antenna: use VSWR: 1.5 to 1 max.

- ALC negative going, adjustable from rear panel
- Spurious Emissions: 100dB greater than 30 dB down Harmonic; greater than 40 dB down FCC Type Accepted
- Size 10 1/2" H x 14 1/2" W x 14 1/2" D
- Weight: (nc. 8877) 54 pounds
- Packaged in 5/8" Hardwood Crate

### MLA 2500 B — 2 kW AMPLIFIER

The world famous MLA-2500 is now the MLA-2500B. Featuring the same EIMAC 8875 work-horse triodes, self-contained continuous duty power supply, full complement metering and controls from the front panel, plus NEW HIGH-LOW POWER SWITCHING for consistent efficiency at both the 1KW and 2KW power levels. The basic MLA-2500 remains the same unit that thousands of Amateurs now have in use the world over, a cool-running full-power Linear Amplifier of high quality, all-American construction and design.

#### SPECIFICATIONS

- NEW FEATURE: Hi-Lo power switching
- 150 thru 12 metres
- 2000 watts PEP input on SSB
- 1000 watts DC input on CW, RTTY or SSTV
- Cent-nube Duty
- Variable forced air cooling system
- Self contained continuous duty power supply
- 2500V idle SSB — 1575V idle CW approx.
- Two EIMAC 8875 external-voice ceramic/metal triodes operating in grounded grid

- 50 ohm Input Impedance unbalanced at better than 1.5 to 1 VSWR
- Harmonic Suppression: meets or exceeds FCC requirements
- Built-in ALC (negative going)
- Built-in RF wattmeter
- Easily changed 117V or 234V AC 50-60 Hz
- Third order distortion down better than 30 dB
- 65 watts minimum drive for 1 kW DC input
- Size 5 1/2" H x 14" W x 14" D
- Weight 47 lbs.



\$1199



\$799

### THE CLIPPERTON-L 2 kW AMPLIFIER

Adventure is a part of hamming, and DenTron's new "Clipperton-L" linear amplifier is dedicated to that spirit, with continuous duty power and high quality components. There are four 572B triodes operating in grounded grid, hi-lo power switching and linear bypass from the front panel, a large illuminated meter for monitoring plate current and plate voltage, a built-in continuous duty power supply with rear panel selection of 117V or 234V primary transformer taps, adjustable ALC. Compatible with most exciters, the Clipperton-L delivers 2000 watts PEP input on SSB and 1000 watts DC input on CW, RTTY or SSTV; all continuous duty.

- NEW FEATURE: Hi-Lo power switching
- 150 thru 12 metres
- 2000 watts PEP input on SSB
- 1000 watts DC input on CW, RTTY or SSTV
- Forced air cooling
- Self contained continuous duty power supply
- 2500V idle SSB — 1800V idle CW approx.
- 4-572B Triodes operating in grounded grid

- 50 ohm Input Impedance unbalanced at better than 1.5 to 1 VSWR
- 50 ohm Output Impedance
- Harmonic Suppression: meets or exceeds FCC requirements
- Built-in ALC (adjustable)
- Size 6" H x 14 1/2" W x 14 1/2" D
- Weight 42 lbs.

### GLA 1000 — 1 kW AMPLIFIER

#### SPECIFICATIONS:

- SIZE 5 1/2" H, 11" W, 11" D
- WEIGHT 24 lbs.
- ELECTRICAL — Power Consumption: 117V AC 50/60 Hz 12.5 amps. Factory fused at 15 amps. 234V AC 50/60 Hz 7 amps. Recommended fuse: 10 amps
- FREQUENCY COVERAGE: 80 metres: 3.45 to 4.3 MHz 40 metres: 6.950 to 7.5 MHz 20 metres: 13.950 to 14.5 MHz

- 15 metres: 20.950 to 21.350 MHz
- 10 metres: 28 to 30 MHz

- RF DRIVE: Max. 135W for 1 kW input
- DC INPUT: 1 kW CW, 1200W PEP SSB
- INPUT IMPEDANCE: 50 ohms 1.5:1 VSWR APX
- SPURIOUS EMISSIONS: 10 dB better than 30 dB, harmonics down better than 40 dB
- COMPONENTS: 4 D50-A tubes 6 — Diodes
- FCC Type Accepted



\$489

### DenTron ANTENNA TUNERS:

- MT 3000A \$447
- MT 2000A \$270
- SUPER TUNER PLUS \$199

- JR. MONITOR \$104
- SUPER TUNER \$160
- 80/10 TUNER \$95
- BIG DUMMY \$43

WRITE FOR OUR LATEST  
HAM-RADIO EQUIPMENT  
CATALOGUE



**MAIL ORDERS:** Box K21, Haymarket  
NSW, 2000, Australia  
**WRITE, PHONE OR CALL IN!**

not an  
oc man  
no band  
swaged

# SIDE BAND ELECTRONICS IMPORTS

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777  
WAREHOUSE 78 CHAPMAN PDE., FAULCONBRIDGE  
TELEPHONE (047) 51-1394 A.H. (047) 54-1392

Next month, MAY 1979, we shall have a stock of new CDR rotators, apart from the well-known HAM-III. The TAIL-TWISTER is actually a larger version of the HAM-III, good for Christmas-tree stacked HF Yagis or 40 Metre beams, further the BIG-TALK, a smaller one than the HAM-III, for small HF and larger VHF beams. The BIG-TALK has apart from the normal azimuth control, a push-button programmable 4-position control.

All rotators of necessity will continue to be for 28 Volt low voltage AC operation as the N.S.W. Electricity Authority demands high fees for inspection and approval of 240 V AC operated control boxes which expense we cannot justify with the small market here for rotators.

## HY-GAIN ANTENNAS:

12-AVQ 10-15-20M vertical	\$50
18-AVT/WB 10-80M vertical	\$125
TH-6DXX 10-15-20M 6-el yagi	\$300
TH3-MK3 10-15-20M 3-el yagi	\$260
TH3-JR 10-15-20M 3-el yagi	\$175
204-BA 20M 4-el Tiger Array	\$230
HY-QUAD 10-15-20M Quad	\$260
2M 5-el yagi w/balun 6'3" boom	\$25
2M 8-el yagi w/balun 12'5" boom	\$30
2M 14-el yagi w/balun 15'6" boom	\$40
BN-86 balun for beam buyers	\$20

## ANTENNAS SUITABLE FOR 10M

11M 5-el yagi 17' boom	\$70
11M CLR 5/8W w/4-radials	\$50
11M CLR-2 5/8W w/3-radials	\$40

## ROTATORS AND CABLES:

KR-400 Med. duty 28V AC oper.	\$125
HAM III Hy. duty 28V AC oper	\$175
Bottom bracket HAM III	\$10
KS-085 Thrust bearing KEN	\$25
8-core rotator cable per yd.	65c
RG-8U foam co-ax per yd.	80c
RG-58U co-ax per yd.	30c
No.14 H.D. copper wire per yd	10c
3/8" H.D. foam co-ax per ft.	\$1

## ACCESSORIES:

SWR-50A 3.5-150Mhz SWR meter	\$26
Voltage Reg. 18V AC in. 12V DC output	\$23
240/18V AC transformer.	\$10
5M RG-58U w/PL-259 one end	\$2.50
Bumper Mount 3/8" 24-thread	\$5
Gutter Mount 3/8" 24-thread	\$3

## COAX CONNECTORS:

PL-259, SO-239 Cable joiners ea	75c
Right angles & T connectors ea.	\$1.50
Mic sockets 3 and 4 pin ea.	75c
GLP right angle RG-58U to SO-239	
w/lock nut & weatherproof cap	\$2.50
MLS right angle RG-58U-PL-259	90c

## KENWOOD PRODUCTS:

TS-520-S 10-160M transceiver	\$725
TS-820-S digital transceiver	\$1100
TS-700SP 2M all mode trans.	\$850
TS-120V 10-80M mobile trans	\$600
TR-7600 2M FM transceiver	\$400
TL-922 10-160M linear amp	\$1200
DK-520 Adaptor (TS-520)	\$20
LF-30A low pass filter	\$30
TV-502 2M transverter	\$300
AT-200 Antenna matchbox	\$175
DS-1A DC/DC converter	\$75
VFO-820 for TS 820-S	\$185
VFO-520S for TS-520-S	\$180
SP-520 for TS-520-S	\$30
MC-10 hand held microphone	\$20
MC-50 Desk microphone	\$50
HC-2 Ham clock	\$35
BS-8 and BS-5 (pan adaptor) ea.	\$65

## YAESU MUSEN PRODUCTS:

FT-7 10-80M mobile trans.	\$475
FT-301S 10-160M mobile trans	\$600
FRG-7 5-30Mhz receiver	\$350

## NOVICE SPECIALS:

10M Sideband SE 502 USB/AM 15W PEP 240V	
AC/12V DC. inbuilt SWR/RF meter	
28.3-28.6 Mhz	\$150
10M Universe 224M USB/AM 15W PEP 12V	
DC 24-ch. 28.480-28.595 Mhz in 5-Khz steps	
clarifier operates transmit and receive	\$125

## CRYSTALS (For amateur license holders)

Set of 8-crystals for converting 23-Ch 27-Mhz CB units to 28Mhz. suitable for Sideband, Universe, Kraco, Hy Range V etc. Converts as per UNIVERSE 28Mhz above — crystals and conversions instr.	\$40
Double female connectors	80c

All prices quoted are net, ex Springwood NSW, cash with order, subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24 hour basis after receipt with payment.

Arie Bles (VK2AVA) Proprietor

Roy Lopez (VK2BRL) Manager

# VK/ZL/OCEANIA DX CONTEST 1978: RESULTS

VK — Phone	100	80	60	20	10	Total	VK3RJ	—	—	—	21285	21285		
Call	100	80	60	20	10	Total	VK3AEW	—	5	24	1650	8360	912	10951
VK1BS	—	20	4	40552	48922	100353	VK3YK	—	—	4	2700	3820	2178	8802
VK1RM	—	—	—	13585	68670	112555	VK3VF	—	—	—	3106	3500	581	1257
VK1BC	—	440	4	86480	8980	2046	VK3DQ	120	—	840	1989	3710	—	6559
VK1FT	—	—	—	27666	38148	18666	VK3CM	420	—	—	—	—	—	420
							VK3SV	5	200	—	—	—	—	205
VK2XT	—	—	—	—	379800	—	VK3SV	—	180	—	—	—	—	180
VK2AXM	—	—	—	—	—	236082	VK3FG	20	45	—	—	—	—	65
VK2APK	—	—	—	51875	117784	—	—	—	—	—	—	—	—	—
VK2NZU	—	—	—	—	136192	—	VK4XA	45	20	11232	40180	55440	112230	219147
VK2NDJ	—	—	—	—	121800	—	VK4SF*	—	—	—	—	128	2100	2228
VK2BSB	—	—	—	9432	81910	102315	VK4CJ	—	—	224	18	260	1134	1634
VK2VAD	—	—	—	—	—	35154	—	—	—	—	—	—	—	—
VK2NVX	—	—	—	—	—	25704	VK5MD	—	—	2480	27875	15580	5088	51123
VK2AHB	—	—	8	4717	16800	819	VK5OR	—	—	—	—	16289	289	15575
VK2YAB	—	—	—	—	20336	—	VK5SW	—	—	—	—	—	—	4300
VK2NYB	—	—	—	—	—	19847	—	—	—	—	—	—	—	—
VK2BAM	—	—	525	8	3719	6630	7095	—	—	—	—	—	—	41328
VK2ABC	—	—	—	—	11766	—	—	—	—	—	22010	—	—	22010
VK2NRZ	—	—	—	—	—	608	11084	11702	—	—	—	18	3120	3138
VK2BQS	—	500	—	1824	450	288	3062	—	—	—	—	—	—	—

VK3OT	—	—	—	548608	—	548608	VK7ZZ	—	—	—	818	2264	1320	4922
VK3AMK	—	—	—	8600	9024	250542	VK7RY	20	30	32	180	578	—	840
VK3AMH	—	—	—	44376	10498	15840	104878		—	—	—	—	—	8844
VK3NHA	—	—	—	—	11369	—	11369		—	—	—	—	—	—

\* denotes QRP

VK3SM	—	—	1184	50	1080	4594																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</
-------	---	---	------	----	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

VK48F	—	—	—	990	10329	97802	108212
VK4ADP	—	550	—	—	9144	59625	88318
VK4NFU	—	—	—	—	72	36300	36372
VK4NFU	—	—	—	—	14880	16851	31731
VK4UU	—	—	—	—	—	—	—

VK5OU	—	—	—	70584	72	2378	73032
VK5ABW	—	—	—	—	86360	—	86360
VK5NVW	—	—	—	—	2112	63114	65226
VK5ZZ	—	—	18	1856	15970	39804	53646
VK5NLG	—	—	—	—	31302	13823	45125
VK5OR	—	—	—	4365	—	—	4365
VK5OQ	—	—	—	1300	1440	1080	8320
VK5NMQ	—	—	—	—	1012	80	1072
VK5RC	—	—	—	144	264	—	508
VK5IT	—	—	—	289	—	—	289

VK6HE	—	—	—	18800	8522	221841	251183
VK6NEX	—	—	—	—	152368	—	152368
VK6NBU	—	5	—	33448	102480	134933	134933
VK6NCW	—	—	—	—	118542	118542	118542
VK6FS	—	—	—	13448	798	49104	83348
VK6NDZ*	—	5	—	6144	51800	57749	23450
VK6NZ	—	—	—	23450	—	—	23450
VK6WAY	—	—	—	—	48	258	—
VK6RI	—	—	—	—	—	—	—

VK7NFR	—	5	—	—	1334	210	1549
VK7NJC*	—	120	—	—	2350	3510	5860
VK8BQ	—	—	—	224	62805	75864	79880
VK8NEB*	—	—	—	—	—	1968	1968

VK9XW	—	—	—	—	—	122825	122825
-------	---	---	---	---	---	--------	--------

\* denotes QRP

Call	100	80	40	20	10	Total	2XT	379800	2APK	183601	1AZV	541974	2BR	147415	
VK1FT	—	—	—	2436	128	2775	3AMK	274186	3MR	148044	1BQD	535290	1IL	128424	
VK2APK	—	—	—	62484	73708	47411	183601	3AMK	256542	3MR	148044	1AKY	298452	1AD1	114030
VK2GV	—	5	6144	11088	33250	11888	62355	2AXM	236682	4XA	112230	1BQD	175764	2ACP	91440
VK2ADF	—	—	—	15360	8112	24552	48024	6NE	221841	2APK	47411	1AD1	158510	1BCG	78435
VK2BQ	—	75	3800	23180	10836	—	37671								
VK2BAC	—	—	—	—	16728	—	16728								
VK3MR	—	—	—	—	—	148044	148044								
VK3AYO	—	5	23540	14280	3762	540	42127	3OT	546808	2APK	37976	1BQD	267038	1IL	107878
								2XT	379800	4XA	56440	2AH	143510	2BR	62952
								2NZU	136192	3GX	33250	12112	2122	2APK	91780





A  
Albert, Albi, Aramac, Atherton, Ay, Balonne,  
Banna, Barclayde, Barcoo, Bazin's, Beau-  
seigneur, Belyando, Bendomee, Biggenden, Inchal,  
Black, Blackall, Boulton, Bowen, Broadscind,  
Brook, Bundaberg, Burgh, Burnett, Burrum,  
Caboolture, Calliope, Cambooya, Cardwell, Car-  
pentaria, Chinchilla, Clifton, Closurey, Cook,  
Crows Nest, Crocyder, Dalrymple, Diamantina,  
Diamont, Dingo, Dispersal, Donaldson, Dry  
Eckhardts, Fitzroy, Flinders, Gordon, Gay-  
dah, Glenelg an Gocburnum, Herbarion, Harvey  
Bay, Hinchbrook, I'acomba, Ingwood, Isia,  
Isidor, Jericho, Johnston, Jondaryn, Kilcay,  
Kilgarrah, Kilkenny, Kilmory, Kynny, Ky-  
Lingslone, Logan, Longreach, McKinlay,  
Mareeba, Maroochy, McPhear, Mirani, Miriam  
Vale, Monto, Moreton, Mouri Morgan, Mulgrave,  
Nambucca, Nargun, Nullis, Nunaw, Nanango,  
Narrabri, Narrine, Narrogin, Neerambi, New  
Rivers, Pioneer, Pittsworth, Proserpine, Quipile,

6. **MODES and BANDS.** All legitimate modes and bands may be used, LF, HF, VHF, UHF, OSCAR, EME, etc., BUT CROSS-BAND MODES ARE NOT ALLOWED.

**7 SPECIAL VK-RULE**  
As a number of areas are not very active, "DXpeditions" to these areas are encouraged . . . to help the Award Hunter (and others) to get that rare Queensland Shire, Town or City.

A copy of the VK/P log shall be forwarded to the Queensland Awards Manager for use as a

The VK/P operator will automatically be credited with "as having worked" that particular area, if at least 20 (twenty) different stations have been contacted from that location.

**METHOD OF APPLICATION**  
A certified list of contacts, as per CHC rules, to be sent to

THE WIA(Q) AWARDS MANAGER  
GPO BOX 638  
BRISBANE, QUEENSLAND, 4001  
AUSTRALIA

with either \$1 (Aust) or 10 IRCs or equivalent for the Initial Award. Subsequent stickers will be issued free, although return postage will be appreciated.

9. CONTACTS MADE AS FROM 1 JANUARY 1978  
WILL BE VAL D FOR THIS AWARD

Federal WICEN Co-ordinator,  
63 Hannaford St., Page ACT 2614  
Ph (062) 54 2058. A.H.

in the March issue of AR, I described how to write a formal message, in this issue I intend to describe how to send one over the radio.

The formal message example chosen is from the ACT WIGEN course lesson notes and the accompanying sender's script is self-explanatory. VKIRH was the sender and VKIZDF the receiver.

The procedure used is that given in the "little grey book" Civil Defence Communications, Part II, 1968. As always, the aim is to clearly and quickly convey the contents of the formal message over the network.

VK1ZDF—THIS IS VK1RH—LONG MESSAGE—  
OVER

THIS IS VK1RH - PRECEDENCE ACTION -  
ROUTE - T ME TWO SEVEN ONE FOUR ZERO  
ZERO K L O JUNE 78 - ORIGINATOR'S NUMBER  
BRAVO 8 ERRR 7 - FROM BRINDABELLA  
SEARCH HQ - TO C ES - BREAK - EXERCISE  
PARA 1 - STOP - SEARCH CONTINUES AS  
PLANNED - STOP - ROGER SO FAR - OVER.

VK1ZDF—ROGER—OVER.  
VK1RH—PARA 2—STOP—RESUPPLY REQUIRE-  
MENTS FOR NEXT FIGURES 24 HOURS FOLLOW  
STOP—ALPHA—STOP—MEALS FOR FIGURES  
25 SEARCHERS AND FIGURES 5 FOR HQ  
STAFF TO BE DELIVERED TO THIS HQ IN  
SEPARATE HOT BOXES STOP—ROGER SO FAR  
—OVER

VK1RH-BRAVO-STOP-WATER COMMA FIGURES  
10 PLASTIC JERRICANS-STOP-CHARLIE  
-STOP-PETROL COMMA FIGURES 44 GALS  
WITH PUMP-STOP-DELTA-STOP-FIGURES  
25 WATERPROOF SMOCKS-STOP-ROGER SO  
FAR OVER

WPKR—ECHO—STOP—FIGURES # BY FIGURES  
12 VOLT CAR BATTERIES FOR RADIO BASE  
—STOP—FOXTROT—STOP—FIGURES ONE  
HANDSET TYPE 1 SPELL HOTEL UNIFORM  
FIGURES 38—STOP—ROGER SO FAR—OVER.

WK1ZDF-ROGER-OVER  
WK1RH-PARA 3-STOP-IF HIKERS NOT FOUND  
BY TIME 281200 KILO WILL NEED TO ROTATE  
SEARCHERS AND REST PRESENT PARTY FOR  
FIGURES 24 HOURS-STOP-OVER.

W1B1H—ROGER—OUT

1470—HOGUE—551

QC 39  
Introduction: See 27  
Formerly  
CM308, P 549: 52-4, A2H

MESSAGE FORM

Note: Shaded areas are for Estimated Time with only

LINE 9 SECURITY CLASSIFICATION AND SPECIAL HANDLING INSTRUCTIONS

LINE 4: [Copyright © 2012 by the author\(s\). All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without permission in writing from the publisher.](#)

PRECEDENCE - ACTION	PRECEDENCE - INFO ROUTINE	DATE - TIME (A/G/D)	MESSAGE INSTRUCTIONS
	2	271400Z JUN76	

ROUTINE INDICATORS	FROM BRINDABELLA SEARCH HQ 0916 only one addressee per line.	08/CMS MD
	TO CBI	B57
		BR

EXERCISE 1. SEARCH CONTINUES AS BLANDINO

2. RESPONSIBLY REQUIREMENTS FOR NEXT 36 MONTHS FOLLOW

A. MEALS FOR 25 SEARCHERS AND 5 FOR HQ STAFF  
TO BE DELIVERED TO THIS HQ IN SEPARATE HQ  
BOXES.

B. WATER. 2.0 PLASTIC JERRICANS

C. PETROL 44 GALS WITH BOMB

D. 25 WINTERBROOK EMOBILE

2. WATERPROOF SOCKS

E. 6 BY 12 VOLT CAR BATT.

P. 1 HANDSET TYPE H110.

.....

3. IF HIKERS NOT FOUND BY 281200Z WILL NEED TO ROTATE SEARCHERS AND REST PRESENT PARTY FOR 24 HOURS.

PAGE NO 1		DRAFTER'S NAME AND TITLE HENDERSON				PHONE NO		REF FILE NO	
NO OF PAGES 1		RELEASER'S NAME AND TITLE HENDERSON				SIGNATURE		DATE	
FON COP LINE	H	DATE	TIME	SYSTEM	OPERATOR	ID	TIME	SYSTEM	OPERATOR
		SECURITY CLASSIFICATION							

Time: 15:23:48 CEST-01:00

**Message Form sample**



## THE LOCAL SCENE

"Quite a lot of interest is brewing on 6 and 2 metres. Mike and most stations are becoming involved in DX and some of these are relatively new calls, who are developing acute awareness to VHF DX as apart from the well known HF-symptom! Amplifiers for 200 to 400 watts are taking over for the coming years. I expect this is common throughout the country and it will be interesting to see the Melbourne stations on 6 metres when the 'Big O' disappears later this year. Let's also hope two metres will see a similar revive from that area as it is disconcerting to hear the only readable Melbourne stations on 144.3 MHz busy using ATV contacts, too busy it would seem, on several occasions, to bother about other DX. Between VGRG and myself we have had only two contacts to Melbourne on 144 MHz this season and I wasn't exactly the propagation which let us down. Plenty of other contacts are to be had to inland VK3, broken Hill, VK8 and VK7.

"One local contact of interest was on 11-2 with Mike VK6ZMI on 432.1 MHz. Mike was using a new ICA2 hand held inside his first storey flat at St. Peters, Adelaide, 60 km path signals 5 x 5. This contact nevertheless is not unusual as previous times I have heard Mike VK6VAG when over a similar distance he was using a groundplane antenna mounted on a bench supply in his shack. It goes to show, however, the interesting properties of the shorter wave lengths as far as penetration goes in built-up areas. Signals on 2 metres under similar conditions are never better except when a great deviation from line-of-sight occurs. Some mobile experiments on 23 cm have also shown this and for on line-of-sight communications a bit of power is needed to get some more coverage from reflection and refraction. By the way, mobile fluter on 1265 MHz was interesting. Just imagine the difference between 144 and 432 and then multiply the resultant factor (3) to get the fluter rate on 1265, 'not unlike a good buzz'."

Thanks, David, for filling in the gaps in my information for the circulation you have made. There is little doubt that the erection of stacked 3 over 8 antennae at the VK5KK OTH for use on 6 metres has paid dividends for TEP signals. The lower angle of radiation and reception of these antennae are consistently giving David a gain at 3 to 4 x is stronger than my large angle 6 element yag. One bonus will be the gain at 144 MHz, as well as a air far array soon and it will be interesting to compare the results then.

## SILENT KEY

Norman Burton BR511464 from Revelby, NSW, writes to say Bob Grimm KB8RG joined the ranks of 5 silent Keys on 12-7, following a massive heart attack at the age of 46 years. Bob was extensively known throughout the VHF world for his contributions to the art, and his passing will be a sad loss for all concerned. Bob had written to me (SLP) previously and indicated how much he was looking forward to visiting Australia from the USA on 6 metres during this cycle. Such is life.

## 2L UNF ACTIVITY

2L VK6ALU has sent copies of information contained in "The Propagator" and concerns the 70 cm opening to New Zealand at the time of the large 2 metre opening in January. Lyle reports he heard the Palmerston North beacon on 432.250 MHz between 2325 EST on 9-1 and 0015 EST on 10-1 at a constant S4. It identifies ZL2VHP using FSK signals were taped CQs on SSB and CW produced no results. An earlier knowledge of the opening may have produced a contact with one or more of their higher powered stations.

Lyle received a letter from ZL1THG of Hamilton, NZ, reporting copy of VK6ALU on CW at S1-2 on 432.250 MHz on 19-1, with correlation with the time Lyle was in the CQ on the frequency (0715 to 0745 EST). ZL1THG called without success, running 3 watts output.

Other information included by Lyle is a list of ZL repeaters numbering 34 stations, mostly FM but a few on AM. SSB calling frequencies in New Zealand are 22, 144.2, 432.2 and 1296.2 MHz. Tom ZL1THG sent a list of 70 cm stations in New Zealand, some of which are included here for your information. ZL1ABW 10W SSB, good OTH. ZL1WMO and CW, also on 1296.2 MHz. 20W AM/CW plus 1296. Good OTH. ZL1THG 3 to

30 watts AM/SSB. Poor OTH, but able to go portable. Also has 1236, 20W and 500W HT. ZL1ABW 10W SSB/CW. ZL1TFJ high power SSB, good OTH. ZL1ZAL 10W on 432, 1296 and 2394. Can go portable. ZL1ZAR has ATV in colour, inc. repeater. ZL1ZAR and ZL1ZLS AM and ATV. ZL1ZLV and ZL1ZLS SSB/FM.

## MICROWAVE TEST

A test was made on the 10 GHz band on 15-79 between VK2BY portable on Saddlecloth Mountain, south of Klam, and VK2ZM/VK2ZAH at Collary Plateau, northern suburbs of Sydney. The test was to try an all land path rather than the all water paths along the South Coast tried last year. No contacts were made possibly due to path obstructions. All the gear used was made by Des VK2AHIC from "The Propagator".

## NEWS FROM THE WEST

WV VK6KZ has written an interesting letter and here are some extracts other than the 1296 MHz record breaking contact with Chris VK5MC which have been covered before. During the annual pilgrimage to the south-west corner of VK6 he was not able to reach further on 432 MHz than Aub VK6XY had done the year before, taking the record. He was unable to work Les VK3ZBJ for some reason, and VK5YLD did not have 432 when operating from the Dandenong.

Looking to next year Wal indicates an interest in the coastal/west contacts from Cape Leeuwin, which is about as far west as one can go comfortably! In addition to seeking contacts to the east, he proposes trying the path to the north, as he has found the trough across the Great Australian Bight appears to coincide with the formation of a trough up and down the WA coast producing good signals between Perth and Carnarvon, and Bunbury and Geraldton on 144 MHz. With reports of high channel TV (180 MHz) from Indonesia being received at Exmouth near North West Cape who knows what can be worked. Maybe he can give the Albany boys a run for their money from Perth! Additionally, he is priming up for 2394 MHz contacts with computer and antenna set up, plus a transmitter which can be provided by Don VK6HK. Also looking at 3 GHz!

On 27-1 Don VK6HK and Wal VK6HZ went portable again to Walpole, and made contacts with VK3 and 6 on 144 MHz. Les VK3ZBJ was heard on 432, but Les was unable to hear Wal, although heard in Mt. Gambier by Colin VK5DK and also VK5CJA on 29-1, besides the VK6VAG and several VK6s on 144, they moved from Walpole to Mt. Burnside, about 60 km inland with an approx. 145 km track across land to the sea, and worked VK5MC and VK5ZPS. This is the furthest west they have so far traced the tropo openings. Bob VK6ZFY is reported to have heard VK5YF beacon on 144 the same day from Kullup, further inland closer to the north-east of Mt. Burnside, but no contacts. The whole trip involved over 900 km of travelling by this dedicated pair.

Wal concludes by saying he is totally unenthusiastic about the present Ross Hull Contest which, with its altered rules, has destroyed any recognition of distance, propagation and frequency as the dominant features of the points table. He is disappointed that the rules, having been an ardent supporter of the contest since becoming licensed as VK6ZAA in 1954. I fully concur with these comments. There is certainly no incentive for stations to go out portable any more (so much so that I am considering selling my alternator), and home stations still actively participate in giving numbers and thus keeping up the overall activity on the bands, but refrain from putting in logs in view of the effort involved for such small scoring returns.

## EXTRA BEACONS

Bill Tynan W3CO, conductor of "The World Above 50 MHz" in "QST" sends a list which contains a few extra beacons which you may care to note on your lists. They include 50.029 ZS8PW South Africa; 50.035 ZB2VHF Gibraltar; 50.100 ZS8VHF South Africa; 50.103 N3AJD Ohio, USA; 50.110 W6GIL Salton and AL7C Alaska. He confirms the 6YRSC Jamaica, T12NA Costa Rica and ZB2VHF Gibraltar are operating. Thanks, Bill.

I had a contact with Bruce VK6ZBC/4 on 3-2-79, who was contemplating whether he should try operating maritime mobile if he should try finding

Julia Creek on whose banks he had been camped for three days waiting for the water to go down.

It is pleasing to see Dave VK4ADL on from Longmeach, hope Alan VK4ZS can be persuaded to come on from there as well. . . . Hal VK4DO reported he had been on the air for 58 years, and had been made a Life Member of the Central Queensland Branch of the WIA and was their first vice president. VK4ZS and VK4ZS have worked on 50-79, which must rank as an outstanding effort, and shows what you can do if permitted to work on 50 MHz! He needs 144DX in the Solomon and VK6N1 Norfolk Island to complete about all there is for the time being. . . . during November last month VK4ZS and VK4ZS had worked on 50-79 and VK6XG and VK6XG, all on 50 MHz of course. . . . David VK6SKJ just back from Cook Islands reports ZK1AA has a 7 helical antenna for satellite working, a 64 element antenna for 2 metres, and an 8 element LP yag on the ground for six metres! But no beacon. . . . VK6RO reported hearing of contacts to work on 2 metres and VK6ZS on 2 metres early February, possibly on Channel 40. . . . no further information obtainable on this. . . . TV sound on 44.250 MHz is from MUKA in Korea—often very strong around C300 to 0500Z.

## ABOUT 52.050

Hassles seem to arise from time to time over the usage or non-usage of the 6 metre calling frequency of 52.050 MHz, to the extent that I received a report there were moves by a VK3 operator to start another calling frequency on 52.225. Such a move is to be deprecated as only recent times have we been able to spread the news satisfactorily overseas that our calling frequency is 52.050, and I would appeal to the VHF fraternity to keep 52.050 as the calling frequency and not start fragmentation of the band. With the first of the 1979 equinox periods right on us and with the cycle 21 peak just around the corner, any moves for such changes must be resisted strongly.

Personally speaking, I see the use of 52.050 in the foregoing manner and I tell these views are supported by quite a number around me.

1. The main idea of having 52.050 MHz as a calling frequency is to use it as such, i.e. overseas and local stations who would be seeking a contact would first of all carefully monitor the frequency (under the terms of your Licence) and if not in use a call would be made or if in use a call made to the station operating on that frequency for a contact.

2. If the call results in a DX contact, especially if overseas, then it is likely the contact will be a brief one, in which case there seems no reason why the contact cannot be continued for a short period and concluded on the call frequency, thus alerting other listeners to a possible contact.

3. If an answering station is a local station and the contact desired to be continued it seems courteous to other band users to shift from the call frequency if you feel there are possibilities of DX being around then you can either make the contact brief and return to make a further call on the frequency or make a shift to 10 MHz which leaves you close enough to the call frequency to be tuned by a searching station, but far enough away to not interfere with a station needing the call frequency. This same situation exists in the case of Es contacts, having established contact move off the call frequency particularly if it is a general band opening.

4. The action of some high powered stations sitting on the call frequency and using it to the exclusion of others in the hope they will be the first to be heard by some other area, in other words, keeping the frequency clear only for themselves, is also to be deplored. This has happened, and it is shameful operating and is to be mainly noted during periods of Es openings, and the issue of some stations having been noted here for future reference.

5. 52.050 is not a sacred frequency, as David VK5KK points out but should be used sensibly and with due regard to others, but as we are all different and some people will always have questionable operating habits, then we need to be tolerant of the shortcomings of some, but none of these reasons give sufficient strength for any move to be made towards another call frequency, let everyone forget it and do the right thing on 52.050.

Having said all that, let's close with the thought for the month "Maturity begins to grow when you can sense your concern for others outweighing your concern for yourself."

73. The Voice of the Hills

#### COUNTRIES ACTIVE ON SIX METRES

From SMIRK comes a listing of countries which are active on six metres. This listing of 42 countries does not include any DXpeditions or other planned activity. With the current sunspot cycle it should present a unique challenge to DXers unlike the bottom DXCC of the FH bands.

The list is as follows:

CE—Cuba, FQ—F. Oceanic, HH—Haiti, H4—Guatemala, K/W, etc.—US, KH—Hawaii, KV4—Vigra, s, PJ—Neth. Ant., TG—Guatemala, VK—Australia, VP2, s, St. Lucia, VP9—Bermuda Is., YJ—New Hebrides, ZL—New Zealand, ZP—Philippines, s, FY7—Fr. Guiana, HK—Columbia, JA—Japan, KG—Guam, KL—Alaska, KZ—Carri Zone, PY—Brazil, TI—Costa Rica, P29—New Guinea, VP25—St. Vincent, VS6—Hong Kong, YV—Venezuela, Z8—South Africa, FK8—N. Caladonia, HC—Ecuador, HL—Korea, JD—Gossware Is., KG8R—Spain, KP4—Puerto Rico, LU—Argentina, P21—Surinam, VE—Canada, CB4—Bahama Is., XE—Mexico, Z82—Gibraltar, 3C2—Fiji Is., 8Y—Seychelles.

From the SMIRK newsletter comes a warning to anyone writing to BV28 on Formosa. Apparently you should not put his call sign on the outside of the envelope. Remember in many countries call signs on envelopes can lead to trouble for the station concerned. So when BV28 is on 6 send your QSL in a plain envelope.

#### 6 METRE LIAISON NET

A 6 metre liaison net is on 28.885 MHz. This is a co-ord. net for listening and calling schedules and reports of 6 metre propagation. W6XJ is on most week-ends. A net on the West Coast of the USA meets at 2100Z Sundays, which is Monday morning in Australia.

## STOP PRESS 6m DX to USA

Bruce N6CT, 60 miles north of San Francisco, was worked on 28.068 MHz by Ed VK4ZEZ, Hal VK4DO, Neville VK4ZNC, and Dave VK3ZDK/s on 2nd March, 1978, at about 0800Z.

Signals to K X 9 at VK4DO, who also worked N6CT with his IC502.

Also . . . on 12th March, W6XJ, N6CT and others worked VK3AUI, VK3AUG, VK3ZXX, VK3AOR, VK3AMK, VK3AKK, VK3OT.

Contact started with W6XJ and VK3OT at 0830k and lasted till 0925k.

JA and KG8DX were worked during the evening.

These are the first VK-USA contacts for QSL 21.

## QSP

#### WHEN NOT TO USE THE GREAT AUSTRALIAN ADJECTIVES

Amateurs everywhere are reminded that we are supposed to "self-police." Notwithstanding all the amateurs (or a few) on the local airwaves of late, have been prone to unwittingly making use of a range of innocent great Australian adjectives. If you hear some then you will be doing amateur radio a favour by inserting a gentle type of reminder. This is amateur radio.

#### DESCRIPTION

Directed to Bob VK2ZRN was the observation by G4 4K2GQ. "Your sign was up and down like a lot seat at a mixed party." — From "Smoke Signals", Dec '78.

# Around the trade

#### NEW LOW PRICED AMATEUR TRANSCEIVER FROM ATLAS RADIO INC

Atlas Radio Inc. USA are due to release a new Amateur transceiver line in Australia through their Australian agents, GFS Electronic Imports, in early April.

This new transmitter/receiver range, known as the "Atlas 110 Line", consists of a high performance amateur band receiver, the RX-110, covering 80 through 10 metres, and two "bolt on" transmitter modules, the TX-110L and TX-110H which, when combined with the RX-110, produce a high performance low cost transceiver. The TX-110L is a low power module having 15 watts input, while the TX-110H runs around 200 watts input.



Overall size of the combination is only 31 width x 9.5 height x 24.9 deep cms, which makes the Atlas RX/TX-110 ideally suited to a mobile installation.

Initially only the high power RX/TX-110H transceiver combination will be available from GFS Electronic Imports. Its expected price is around \$499.

For further information on the Atlas 110 Line and its accessories contact GFS Electronic Imports, 15 McKean Road, Mitcham, Vic. 3137, Phone (03) 873 3839.

#### HY-GAIN PRODUCTION UP AND NEW LINES ADDED

Since the re-opening of Hy-Gain Electronics in the USA, orders have outstripped production, according to the new Australian distributors, Audio Telex Communications Pty Ltd.

"We are all delighted with the speed in which Telex Communications were able to restore production and re-introduce the fine range of Hy-Gain antennas," said Rod Craig, General Manager Audio Telex.



Apart from re-establishing existing lines, Hy-Gain have announced that the Telex range of headphones and microphones will now be combined with the Hy-Gain Amateur antenna range.

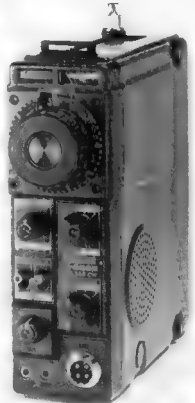
Telex make a wide range of headphones and headsets with boom mics, which are specially designed for amateur use.

"We are stocking the popular CM1320 and C1320 series," said Mr. Craig. "These models are well known in the amateur field, particularly in the CM1320 headset microphone with ceramic boom mic." Mr. Craig went on, "Now that Hy-Gain is a division of Telex Communications Inc., it is logical that products for the same market should be sold by the one group, and we at Audio Telex will be marketing these products through our Hy-Gain retailers."

#### ICOM RELEASES IC202S

The latest update to the popular 2m ICOM portable transceiver is the IC202S 3 watt model featuring both upper and lower sidebands. Previously the unit suffered the disability of having only one sideband.

The IC202S also incorporates a number of circuit improvements over the IC202E and the earlier IC302.



The ICOM product range is distributed in Australia by VICO (Amateur Radio Division), 66 Eastern Road, South Melbourne, Victoria 3205.

**HELP YOURSELVES —  
GIVE TO THE  
WIA WARC FUND**



# NEW ATLAS 110 LINE



## • 200 WATTS • \$499 • 80-10Mx •



**ATLAS**  
RADIO INC

Now, for only a fraction of the outlay previously necessary you can run 200 Watts on 80 through to 10 Metres, work CW or SSB, operate from the car or from the home QTH using the RX/TX-110H in combination with its AC Power Supply, PS-110

**RX/TX-110 Transceiver** ..... \$499  
**PS-110 Power Supply** ..... \$109  
**MM-110 Mobile mount** ..... \$58

For color brochure with complete specifications write to us, phone us or just drop in and have a look at the RX/TX-110

Why settle for a second hand FT-101 or TS-520 when you can now buy a NEW Atlas Transceiver.

**We at G.F.S. are proud to introduce a real breakthrough in versatile, low cost, Amateur Transceivers.**

First came the receiver, The Atlas Rx-110. A performance plus Amateur Band Receiver incorporating high sensitivity selectivity and dynamic range. Couple that to a "bolt-on" Transmitter Module, the Atlas TX-110H, which has low spurious and harmonic radiation, high carrier and unwanted sideband rejection and 200 Watts in-put. You now have the unbelievable Atlas RX/TX-110H top performance transceiver which costs NOT \$950 NOT \$750. NOT even \$650 but just \$499.

- MAJOR OUTSTANDING FEATURES**
- **Frequency Coverage** 35-40 MHz 70-75 MHz, 140-145 MHz, 21-21.5 MHz, 28.0-29.0 MHz
  - **All Solid State** High Performance Design Excellent sensitivity selectivity and dynamic range superior to most receivers currently on the market
  - **Receives and transmits CW and normal SSB** - SSB on 3.5 and 7.0 MHz bands USB on 14.0, 21.0 and 28.0 MHz
  - **Standard CW** is a standard feature on the RX TX 110H
  - **Built in speaker** and CW sidetone
  - **Modular Design** provides much easier service and maintenance. This is a piece of equipment that you can work on yourself if you wish. Because you can get it everything with ease.
  - **Delays of 12-14V DC** for mobile or 220-240 V AC for home operation with the Atlas PS-110 Power Supply
  - **Superior Size** RX/TX 110 measures just 31W x 10H x 25D cms

The ever popular **ATLAS 210X** is still available, but now at a special low price for current stocks that won't last long. Be early and save over \$150.00.

**ATLAS 210X only \$695.00**

### NEW! NEW NEW SX-100 Programmable VHF/UHF Receiver.

It had to come. A Keyboard Entry Microprocessor controlled VHF/UHF Monitor Receiver from Japan with the following outstanding features:

- Wider frequency range, 30.54 - 140.185 and 410 - 514 MHz
- 5 KHz Channel Spacing on VHF and JHF
- Covers 6, 2, 2 and 0.7 meter Amateur Bands
- Over 32,000 Channels
- 95 uV Sensitivity
- 220-240 VAC and 12-18 VDC operation
- Large Green "readout" showing channel number, frequency time, day and date.



**16 Chns.**

**\$392.00**

Write for a brochure or drop in for a demonstration of this remarkable receiver

### EMOTATOR ROTATORS

**MODEL 103L BX Medium Duty**  
 Rotation torque 450 Kg-cm  
 Brake torque 1500 Kg-cm \$149



**MODEL 102CXX Heavy Duty**  
 Rotation torque 600 Kg-cm  
 Brake torque 4000 Kg-cm \$255



**MODEL 1102MXX Extra Heavy Duty**  
 Rotation torque 800 Kg-cm  
 Brake torque 10 000 Kg-cm \$388

1211 Mast Clamp for 103L BX \$19  
 1213 Mast Clamp for 102CXX \$31  
 1215 Mast Clamp for 1102MXX \$48

**MX-2231** CDE Light Medium Duty rot for S750

### STANDARD MODEL C8500

### BLACK BOX COMM RECEIVER



**JULY \$339**

A lot of the air communication receiver covering the range 0.5-30MHz using a Whitley loop for rock solid stability, unlike some other receivers that use only one filter in the F and exhibit poor selectivity. The C8500 has two filters, giving good selectivity on SSB and AM. For more details write to us for a brochure.

### MFA ANTENNA TUNERS & ACCESSORIES

- MWJ-8418** New updated Tuner, now has 6 Position Coax Switch, more inductance as well as SWR/PWR/Meter, 100m and 150-100m 300 Watt capability \$199
- MFA-941** Same as 8418 but less Meter Switch and Bracket, 200 Watts \$93
- MFA-920** Same as 901 but less Balun \$78
- MFA-1000** 10 SCHEM Pre Amp 20dB Gain \$78
- MFA-202** RF Noise Bridge 1 to 100 MHz Reads actual Resistance (0-250 ohms) and Reactance (-1 to 150 ohms) \$78

- Multi Palm II** \$229.00 inc 1 ctn. and 10 Car Batteries
- Leather Case** \$15.00
- Battery Charger** \$9.00
- Extra Channels** \$3.00 per ctn.

Come and see the **NEW MFA-2500** linear at GFS, Victoria's District Agents.

- BENTON RADIO CO.**
- MFA-1520** 2KW PEP Linear \$1190
- MT-3000A** 3KW Antenna Tuner/Dummy Load Power Meter \$447
- MT-2000A** 3KW Antenna Tuner/Co Ax Switch \$270
- 160-10M** 1KW PEP Antenna Tuner 100-100m \$158
- JB-MONITOR** 300W Antenna Tuner and Relo live Power Meter \$99
- 800 DUMMY** Oil Cooled 2KW Dummy Load \$43

**\* BUDGET PURCHASE**

Take Newish commercial type complete with beam mounted **WIDE CANCELLING MIC** (limited quantity only) Normally priced at around \$60

**\* JUST \$24**

Soon available a range of **PROFESSIONAL FREQUENCY COUNTERS** with up to 1.25 GHz and 0.5 PPM

### IS THERE A DX5550 FREQUENCY COUNTER SIGNAL GENERATOR IN YOUR SHACK?

If not now is the time to update your test gear with the popular instrument

Featuring a 220 MHz counter upper limit and 30 MHz generator upper limit

Generator frequency is read directly on the counter

A MUST FOR EVERY HAM SHACK.



**Technical Data**

10Hz to 220MHz counter

0.4 to 30 MHz generator

600Hz tone oscillator

2MHz and 200MHz gating time

5 Digit LED display

Switchable kHz and MHz

Wide Range of **Standardized Spares** available as used in YAESU KEN WOOD STANDARD etc.

- HF Operators watch our future advertisement for details of a brand new revolutionary form of 10 metre communications never before available in Australia in this form

### THE PALM MULTI



### MULTI Palm II

- CALL BOOKS**
- Foreign Callbook \$17.95
- USA Callbook \$18.95
- World Prefix Map \$3.00
- Kit of Maps \$9.95



**SWISS QUADS**

After high forward gain

\$ 168.- (up to 140m) narrow beam width and good front to back ratio.

\$ 148.-

30 DAY LIMITED WARRANTY APPLIES TO ALL EQUIPMENT BUT DOES NOT COVER FINALS

**G.F.S. ELECTRONIC IMPORTS** 15 McKEON ROAD, MITCHAM, 3132, (03) 873 3939

## CUSTOM COMMUNICATIONS

## TRIO KENWOOD COMMUNICATIONS

**\$185** per night



TS600  
\$850.00

\$43.00

The TS 600 is an all-mode solid state transceiver which fully covers the 5 meter band. This transceiver is based on our many years of successful experience with the 6 meter band. Its features include SSB, FM, CW & AM operation with sending and receiving capabilities on 20 channels with 5 crystals. The TS 600 is an all-in-one type that comes complete with built in speaker, power supply, and microphone. You can enjoy QSOs with domestic stations or DX especially when sporadic E occurs!



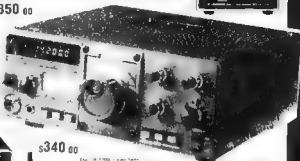
The TS 700S is the all-mode solid state transceiver that provides you with versatility plus over the entire 2 meter band. It's feature packed design puts you on SSB, FM, CW, and AM. The AC and DC power supplies are built in which allows you to operate the TS 700S just about anywhere. Equipped with a VFO that enables continuous tuning from 144-148 MHz, the TS 700S comes complete with built-in digital frequency readout, receiver preamplifier, VOX, sidetone, and microphone.



The TS-820S is a 18 to 29.7 MHz SSB, CW, RTTY transceiver backed by our many years of successful experience and "know-how", as well as the most advanced electronic technology. The signal circuits of both the transmitter and receiver sections are quite simplified with the employment of a single conversion system for linearity. This transceiver also employs phase lock loop (PLL) circuitry. PLL technology allows accurate frequency



The TS-520S combines all of the fine, field-proven characteristics of the original TS-520 together with many of the ideas, comments, and suggestions for improvement from amateurs worldwide. Kenwood's ultimate objectives are to make quality equipment available at reasonable prices. The TS-520S provides full coverage on all amateur bands from 1.8 MHz to 29.7 MHz. Kenwood gives you 160 meter capability, WWV on 15,000 MHz., and with the addition of the TS-502 and TS-506 transceivers, your TS-520S can cover 160 meters to 2 meters on SSB and CW.



MC 50  
50 kHz 500Hz  
Dynamic Desk Mic



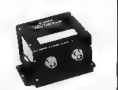
MC 20  
50012  
Dynamic Handy Mic



MC 10  
50 kΩ  
Dynamic Handy Mic



LF 30A  
HF Low Pass Filter



BPF-2A  
2m Band Pass Filter

**DEALER INQUIRY WELCOME!**

Phone: (02) **681 3544**

A.H. (02) **674 1719**

# CUSTOM COMMUNICATIONS

TEL: 681 3544  
A/H: 674 1719

No. 6 ORCHARDLEIGH ST.  
YENNORA (Near GUILFORD) N.S.W. 2161



ICOM

IC-280



2 MTR FM  
SYNTHESIZED \$450.00



IC-PSU  
\$253.00



1-8-30  
MHZ HF \$1380.00



IC-225  
FULLY PROGRAMMABLE  
2MTR 10W FM \$330.00

**PLEASE  
SEND FOR  
PRODUCT  
CATALOGUE!**



IC-211  
2MTR ALL MODE \$799.00

## —SWAN TRANSCEIVERS—



300W INPUT \$809.00  
SSB HF TRAN.  
DIGITAL DISPLAY

MODEL 350D HAS THE SAME  
SPECIFICATIONS AND  
CHARACTERISTICS AS THE 350B  
EXCEPT THE UNIT COMES WITH A  
BUILT-IN DIGITAL FREQUENCY  
DISPLAY WITH READOUT TO 100KHZ

DIGITAL DISPLAY  
TO SUIT 700S  
350B, ETC. \$250.00



MX-100 \$799.00  
100W PLUS  
MOBILE SOLID STATE

**DEALERS WANTED  
IN ALL STATES!**

Championship performance! That's what is in a Swan transceiver. Engineered completely by Americans to be a top performer, for less cost-per-watt. Swan transceivers are designed to let you have all the punch and performance needed.

COM & SWAN ALSO  
DISTRIBUTED BY: SIDE BAND  
ELECTRONICS SALES  
CROWS NEST  
PHONE 438 4191  
FOR SWAN N.W.A. PERTH  
CONTACT WILIS TRADING  
PHONE 321 7609



Mike Bazley VK6HD

6 James Road Ka amunda WA 6076

I was listening around on 20 SSB the other day and came across a QSO between a VK3 and a VK7. The VK3 had recently put up a 3 element mono-bander and was detailing the DX he had worked. Unfortunately the VK7 was not really impressed because as he said "DX was not for him as he could only find room to put up a 20 metre dipole at 40 feet and did not own a line!".

I just cannot agree with this statement! If one has room to put up a dipole on 20 then one has room to put up dipoles on 16 and 10 as well. All three antennas, if need be, can be fed from the same feeder. One hundred watts of CW can work the world.

Discouraging most of the north and South American majority of amateurs using the CW mode use a mixture of dipoles or ground planes and have an average power input of 50 watts. They can work the world, why should we not do the same?

Are you fed up with fighting the QRM on SSB? How about joining the mob on CW? It only takes a little practice to brush up that code speed, you did it once to get your ticket so you could do it again.

Hey I hasten to add that I have nothing against SSB, but in circumstances of low power and non-directional antennas CW has a distinct advantage for the DX lover. As a certain DX stat on recently remarked to me after an 80 metre QSO, "If I had had tried that on SSB we never would have made it".

After last month's comments on the possible abuse of nets one might think that I was totally against them. Nothing could be further from the truth provided they are well managed and a station is left to make or not make his QSO when his turn comes. For those who like to join in round table DX contacts the following should be of interest: C6ACA together with FQDAYO and HR3JUR, often gather on 44.80 at 2000 GMT, all are welcome. There is also the DX group, usually run by 71LZ that meets daily on 14.20 at 0700 GMT. A look up for the Caribbean net which is now active again on 14175 from 1100Z.

P29JS is said to be holidaying in GW land at the time this was being written (late February) and rumour has it that he has all the necessary visas and permits to operate from the Andaman Islands. Rumour corner also states that VP8SU (South Oranges) is off the air with transmitter trouble. How serious this is and whether the problem can be solved is not known.

3X1X was heard the other day and disappeared under a monster pile up of Ws and Europeans. The wiser never heard him again and doesn't know whether this is a genuine operation or not. The time was 2300 GMT on the low end of 20 CW.

VE3BKX/4, has been worked from VK6 on 80 SSB. His location counts as Syria and he stated that he had a fixed beam on VK. It is believed that he would welcome other QSOs and VKs. QSL via WA3HUP.

VR7CT is reported to be awaiting the arrival of slow scan TV gear. This wiser still needs him on any night and a new one! VR8SJ is supposed to be active for a few days from April 1980, mainly on CW. There's hope yet!

The West Gulf DX Bulletin reports that 8T0HF is in the Southern Sudan. He uses an SR-150 and SB 220 into a dipole and should be there until the end of April. QSL via G4GFT which is his home call.

#### THE MALDIVES

If you worked 8Q7AF or 8Q7AG, Carl and Martha Henner did your February, QSLs got to their home



A real ham shack — complete with QY.—Andre F8DB.

QTH — 8200 Chestnut Drive, Jonesboro, Georgia 30238.

The West Gulf DX Bulletin also reports that SM4M1 could be going to 3X, Guinea, in April. Could this be the 3X11X reported above or "Gilm" jumping the gun?

Alghausian, once a fairly common country, is now appearing on country want lists. YAI00 was worked on 20 CW at 1330Z doing a roaring trade and asking for QSLs via W4BW. No reports of whether he is genuine or not — best keep to the DXers' rule, work 'em first and find out afterwards.

AS1PH, Bhutan, seems to be quite active these days either on 20 CW or in the South-East Asia net which meets at 1200Z on 14300. An AS1PH was heard on 10 metres but the beam heading peaked towards JA.

Very many thanks to VK3DU and VK6HE who supplied information, and the West Gulf DX Bulletin published by WAAJUD. My June deadline

is Wednesday, 25th April: any news, views or photos welcomed. Happy DXing.

#### QTHS YOU MAY HAVE MISSED

C6ACA Barry Parkinson, C/- St Andrews School Box N 7546, Nassau, Bahamas

J28AZ Via 1B/N, Giuseppe Mauro, Box 336, Napoli, Italy

KG4HC Harry Chamberlain, Box 12, PJO, New York City, 08593, USA

VP2DAG Clayton Saltzhar, 47A Kennedy Avenue, Rosess, Dominica Island, West Indies

VP2SAB Via W2MIQ Edward Berlin, 47 Palisade Road, Elizabeth, 07209, NJ, USA

VP2VSK Ed White Box 84, Road Town, Tortola, British Virgin Islands

9V1TK Via J4RIL, Kyo Okazaki, 1 Ebisu, Nakatsu, Oita 871, Japan

3D6AR, Via WAAAHF.

## REPEATERS

According to reports from the initial testing, the Mt. Macedon system appears to have a service area far in excess of original expectations. Further details will be published after the system has been permanently installed.

#### CH 4 BENDIGO

The Bendigo repeater was struck by lightning in late January and was off the air for about two weeks. Damage to the repeater itself was minimal but a high gain antenna was destroyed. It is believed that the antenna was not connected to the repeater, as it was due to be installed to the system a few days after. Even so, capacitive coupling from the antenna to the repeater still caused some damage.

The system is now operational again.

#### CH 7 MT. WILLIAM

Gremlins struck this repeater during late January. The power supply decided to overheat and explode, causing severe damage to the transmitter.

The damage sustained was beyond economical repair and a stand-by unit was prepared for installation into the system. Ch. 7 was back on the air on 20th March.

Ch. 4 Translog and Ch. 8 E Clippeland are to interchange during 1979 to minimise interference to other Ch. 4 systems throughout the State.

Editor's Note: Contributions on a regular basis from the various repeater groups and clubs are welcome for inclusion in this section. Please forward your group's comments to: The Editor, PO Box 2611W, GPO Melbourne 3001.

Since Christmas, Victoria has had its fair share of repeater problems with 4 repeaters being off the air through various causes at the one time.

#### CH 2 MELBOURNE

This repeater was vandalised in late November 1978. The receive cavity resonators were stolen, the receiver and control circuitry smashed beyond repair and the coaxial cable was severed.

The transmitter is still intact as it was housed in a separate building.

Damage is estimated at \$1800-\$2000, and an appeal has been launched from Melbourne Ch. 2 users to contribute towards its replacement. Further donations would be most welcome and will help speed the restoration process.

The opportunity has been taken to overhaul the complete system and to arrange for a more secure site to be located.

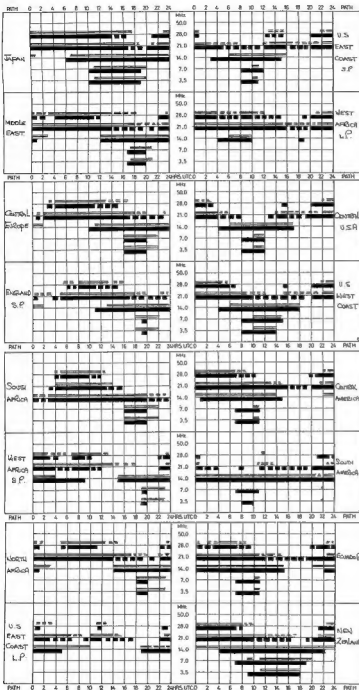
At this stage it is expected that the repeater will be back in service around late March/April.

It is also believed that the offenders who damaged the repeater are known to the authorities but nothing further can be said at the moment as charges may be pending.

#### CH 5 MT. MACEDON

After a brief period of testing during November 1978, the system was taken off the air for completion. It is now due to be put into service on a permanent basis by mid-March.





#### LEGEND

FROM WESTERN AUSTRALIA  
FROM EASTERN AUSTRALIA

BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY  
LESS THAN 50% OF THE MONTH

PREDICTIONS COURTESY I.P.S. SPHERE

ALL TIMES UNIVERSAL UTC (GMT)

## MAGPUBS

**WIA Car Stickers now available:**

Send only 20 cents each — **GET ONE NOW.** Send only self-addressed stamped envelope with 20 cent stamp —

Direct to your Division or from  
Box 150, Toorak, Vic. 3142.

**New rates for 1979 subscriptions:—**

VHF Communications by —  
Surface mail ..... \$8.20  
Air Mail ..... \$12.40

Single issues, when available  
from Magpubs for 1978/79, will  
be each ..... \$2.10

**MAGPUBS—A WIA Membership Service,** Box 150, Toorak, Vic. 3142.

## HAMADS

- Eight lines free to all WIA members. \$9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Reprints may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

#### FOR SALE

**Yaesu FT-361D Transceiver**, fully solid state with digital readout with deluxe power supply FP-3010, \$1200. ONO, also matching FX-301 remote VFO, \$125. VK3AVE. Ph. (03) 64 4290 bus.

**Heathkit BB10 Monitor Scope**, 1.8-144 MHz, up to 1 kW power, with 2 tone test. L. White VK4AMF, 30 Oaklands Pds., East Brisbane, Q. 4169. Ph. (07) 361 6180.

**Yaesu FT301D Transceiver**, 160m-10m, with SSB, AM & CW filters, FP301 AC power supply and mobile mount for FT301D, \$1200; 9 ft. 80m adjustable mobile whip aerial with spring, \$40; AL48DXN 40m & 80m trapped dipoles in original carton, \$50. R. J. Lukelsi VK3BRL, Box 18, Eaglehawk, Vic. 3556.

**Syston Donner digital frequency meter**, model 1034 with 8 digit display and crystal oven options. Operating manual and full circuit details. \$65. ONO. 18 AVT 80m-10m trap vertical antenna, good condition, \$85. ONO. Ray Roche VK1ZJR/4, 1 Heather St., Silkestone, Cld. 4304.

**Janet Laboratories (U.S.)** Model 80PB 28-30 MHz low noise satellite pre-amplifier, 12V DC operation, complete with circuit diagram, two available, \$25 per unit. Ross Treloar VK2BPZ. Ph. (02) 239 5267 bus.

**Icom IC202 2m SSB Transceiver**, complete and in exc. cond., \$140. VK3KK, OTHR. Ph. (03) 469 4800 after 6 p.m.

**Fys Leader Mod. MVA519 Lo Band AM Mobile Transceivers** — Quantity 16, various conditions, majority functional, still commercially licensable, suit conversion to 6 metres — \$200 the lot. B. Marsh VK3ZHI. Ph. (03) 725 7262.

**Gelen SV230 2 Mx FM Transv.**, 25W. repeaters 2, 4, 6, 8 & simplex 40, 50, 51, good cond., \$150. P. Wiermott. Ph. (03) 772 1802.

**Realistic BK160 Rx**, ideal for listening and beginner, only 12 months old, \$100. VK2VHP. Ph. (02) 84 2165.

**Communications Rx Drake SSR-1**, —0.5 + 30 MHz, solid state, battery & 240V AC operated, built-in speaker & antenna, as new, in original box & with handbook, \$250. VK2ZFN. Ph. (02) 713 1831 AM (April).

**23 Ch. 27 MHz Pace 1000m**, full PLL, very suitable for 10m conversion and extensive channel range, \$100. TRC 47 — 23 Ch. 27 MHz, all crystal, \$100. VK3NSM. Ph. (03) 743 6992.

**Yaesu FRQ7**, exc. cond., \$275. Hygain VII deluxe 1m beam station with digital clock and power mic., easy conversion to 10m, power antenna for 25W PEP. \$200. Johnson Viking 352D, 10m 200W PEP, thumbwheel dial up of frequency, with rocking armature mic., \$175. Jim VK3CEE. Ph. (08) 62 4417.

**Kenwood TS 700A**, all mode 2m transceiver, as new condition, with RF stage and external VOX, operating and service manuals incl., \$680 ONO. Tektronix Model 504 AD-51, single beam oscilloscope, DC to 10 MHz in first class cond., probes, manuals and spares, \$220 ONO. RCA 31 Service 'acope, in god order, \$75 ONO. VK2HF, QTHR. Ph. (02) 488 1955.

**Yaesu FT75B**, AC and DC power supplies (FP-75B and DC-75B), external VXO, mobile mount and manual, \$400 ONO. VK5ATM, 26 Collingwood St., Port Pirie, SA 5540. Ph. (086) 32 2009.

**Yaesu FRQ-7**, R, purchased 1978, as new, in canon, \$250. Bob GuBnerlet, 31 Bandon Tce., Marino, SA. Ph. (08) 299 4305.

**Yaesu FLDX/FRDX** 40 matched Tx/Rx, with manual, 150m, 4750W PEP, 2 and 5m converters, min cond., FP-150 dual supply load, \$96 new. VK2N5E, Bank Lane, Quirindi 2343.

**PC901 180-10m, 4240 ONO. FTV250 2m transceiver, \$290 ONO. Antennas with all mounts and coax, 15m dipole, 10m 5/8 stainless steel whip, 10m helical, 80m helical coax (long) RG8, RG58 with plugs, short bits also. Rotator, new with cable, light duty, \$100 the lot. Contact Kearney, Ph. (09) 818 0321, ext. 136.**

**Bwan MB99A** miniature 30m SSB transceiver, up to 182W input, use as mobile, portable or base, \$250. VK2AV, QTHR. Ph. (02) 88 2359.

**Hem II CDR Ant. Rotator**, unused, original packing, \$150. TK5MKS Trichard, Hygain 300V, unused, original packing, \$210. 18AVT Hygain multi-band vertical ant., VGC, \$80. Constant voltage transformer with bridge rectifier, 38V DC at 18.5A (trans. could be tapped), \$80. VK39FB, QTHR. Ph. (03) 93 1638.

**Honda E1800W AC & DC motor alternator**, had little use, looks like new. **Yaesu FT101**, with little use, looks good, manual available. FT7 Transceiver, sack. VK3SS, Ph. (051) 47 2265.

**Linear amp** with 2 x 500Zs in final together with 2nd section, max. sec. voltage 5000V, 340V primary with secondary winding, 20, 3 & 4KV at 10 amps, each side of centre tap together with 2 bridge rectifiers at 2N3055s. H. G. Wilson VK4AGD, QTHR. Ph. (071) 72 4107.

**Crankup Tower**, 2 section, solid galv., with Ham 'M' rotator attached & with Indicator, \$250. Drake RA4 Rx, exc. cond., all ham bands 1.5-29 MHz, NS, \$350. VK3CL, QTHR. Ph. (03) 509 2599.

**Drake R-4C Rx**, in mint condition, \$500. 4WB notes, blanker, \$45. MS-4 speaker, \$30. Also 8 1/2" auxiliary s.s. manual available. FT7 Transceiver, as new, \$500, with separate PSU, FP-4, \$50, complete with mic., all assoc. cables, etc., original cartons, manual. Ph. (03) 570 7592.

**Ten Tec Argonaut 809**, with matching 50W Ten Tec linear, \$470. Multi-7 2m, most channels, \$175. VK2SM, QTHR.

**Kenwood 820D (AC/DC Model)**, \$550. **Yaesu FL2000B** linear (2 x 572B triodes in GG), \$400. **Yaesu YC3550** freq. counter, \$300. VK2BOA, QTHR. Ph. (046) 61 1580.

**TA23 Senior Triband Beam** with 40m trap and element; also band, \$175 ONO. VK3ACN, QTHR. Ph. (054) 42-1236 BH.

**Leader LSG 15 RF signal generator**, in carton, with manual and cable, little used, \$50. VK5NTT, Melbourne, SA 5463 or Ph. (08) 83 1268 evenings.

**TSB908**, \$300; IC280, \$320; IC260, \$170; IC302, \$170; IC2ATZ with Cha. 8 & 40, \$55; TT Match-line RTTY demodulator, \$55; YC3550 freq. counter, \$200; all prices ONO. VK3BEJ, QTHR. Ph. (050) 24 5814.

**Yaesu FRQ7 Rx**, as new, \$260. Mini-Products hybrid cond. compact beam, as advertised QST, 14, 21, 28 & 50 MHz, 11 ft. elements, 4ft. 8 in. boom, with balun, suit TV rotator and hardware. Ray VK3RF, QTHR. Ph. (03) 878 5305.

## WANTED

**For Gwenn SW 240, 3 band Transceiver**, function switch SW1; low position control for TX, receive, transmit, tune. VK4DO, QTHR. Ph. (079) 28 1550.

**Parts for AR7 (HRO type) Rx**, particularly coil boxes, circuit diagrams and even junk units, for overseas society. Therefore donations most welcome. VK3CIF, QTHR.

**Variable capacitors** — transmitting — high voltage type. "Bill" Perry VK3BAV, QTHR. Ph. (03) 598 8665.

**Yaesu FL2100B Linear**, in good condition. J. E. Falkner VK3EB, QTHR. Ph. (03) 41 5037 bus.

**Drake Equipment:** T4XC Tx, R4 Rx, noise blanker, CW filters, speaker, etc.; urgently required. Please contact Peter Nesbitt VK3APH, 78 Downshire Rd., Eitenwick, Vic. Ph. (03) 523 6932 AH, or (03) 317 9001 bus.

**Type 3600 Relay**, also circuit diagram of disposals test circuit D13 Type 1, Serial 16. Measures AC & DC volts 50-250-500V AC, DC current 1-10-50 amps. Prices to: Allan Bull VK2FB, 67 Fernleigh Rd., Waggas 2050, NSW.

## TRADE HAMMUS

**Why drill a hole in the roof of your car?** Fit a "J & D" Cadmium-plated mounting bracket direct to your sld bar — fits all whips, etc. — \$2.00 plus postage 50c. B. Chivers, 19 Naomi Cr., Bayswater, Vic. 3153. Ph. (03) 728 3906 AH.

**QSL cards, log books, contest sheets** — send 20c stamp for samples and prices to Linda Luther VK4VU, P.O. Box 498, Hambro, Qld. 4560.

**KLM imported mono band beams** for 40, 20 & 15 (ex-stock). Comprehensive range high gain beam for HF, VHF & UHF, suit amateur, novice & CB operators, 5, 8 & 11 m, models for 6 metre band, 7, 11 & 15 m, all models suit UHF-CB. Range of baluns and power dividers. Write for free catalogue. ATN Antennas, Box 80, Birchby, 3483. Ph. (064) 92 3211, ask for 264.

**Rotators CDE, Ham II Rotators**, complete with 33 metres Belden rotor cable, \$325.00. Cushcraft ATB-34 4 element Tri-Band Yagi with balun, full size, best available, \$290.00. Cushcraft ATV-4, 10-40 metre impregnated, \$105.00. Alpha PA-TAE 1-30 MHz Linear Power Amplifier, with 5 Elmec 2874 tubes, maximum legal power, plus continuous duty, \$1995.00 — the ultimate. Contact James Goodger VK2JO, Australian Sound & Signal Research, 11 Edgell Rd., Bondi Junction, 2022 NSW. Telephone (02) 389 6425 — 388 7788 — AH (02) 36 7788.

**XITEX "Glass Teletypewriter"**, needs only a keyboard and TV set to teletype and display 16 lines of 64 chars; switches for 45.45 Baudot-110/300 ASCII, 20 mA or TTL interface; full U/V and Greek chars in ASCII mode, addressable cursor; feed on-board PSU 9-12V AC or plug into an S-100 slot; micro computer controlled pre-programmed; full kit, \$169, including delivery and sales tax; suitable keyboard kit, \$78. From The Micro Shop, Box 207, Gawler, SA 5118.

## ADVERTISERS' INDEX

AMATEUR'S PARADISE	20
AMATEUR RADIO ACTION	30
ATN ANTENNAS	50
AUSTRALIAN SOUND & SIGNAL RESEARCH	7, 50
"BAIL" ELECTRONICS	22
BRIGHT STAR CRYSTALS	22
"CHIRNSIDE ELECTRONICS	50
B. CHIVERS	50
CUSTOM COMMUNICATIONS	46, 47
DELTA COMMUNICATION SERVICES	20
"DUICK SMITH ELECTRONICS	28, 31

## SILENT KEYS

It is with deep regret that we record the passing of —

Mr. R. E. EARLE	VK6CL
Mr. C. F. A. LUCKMAN	VK3JT
Mr. H. K. BAVISTER	VK2ZDQ
Mr. G. J. CLEMENTS	VK3TK

## OBITUARY

**CLAUDE BURNS** VK4CB

Claude, who was born in Maryborough in 1893 had been an active amateur radio operator for over 54 years and in fact was active on the air up to within a few days of his death.

His first transmission was in 1924 from Rebutal, using Morse code. His first amateur radio operator's licence was issued at Kilarney in 1927 and his first call sign was AC8B. This call sign was later changed to VK4Z2, the call sign which will now be so sadly missed on the air waves.

From the "Cairns Post", 27.11.78.

**CHARLES F. A. LUCKMAN** VK3JT  
Charlie died on 21st January 1979, after a long illness.

Charlie was first licensed in Sydney in 1928 where he was employed as an electrician with the old Government Tramway workshops at Randwick. He was a leading light in the formation of the Laxambie Radio Club, VK2LR, being our first president.

He was a most likable man with a keen sense of humour, ever willing to help in any way with a radio problem. I always remember his assistance in the late 1920s when I was trying to master the Morse code as he gave up his leisure time to provide me with Morse practice. He had the great ability to send Morse on a hand key with the right or left hand equally well.

His wife pre-deceased him some years ago. This sad blow plus the fact that someone broke into his shack and stole his CR100 receiver, seemed to numb his interest in amateur radio and his health declined. After developing Parkinson's Disease he lingered for a few years, finally passing away, aged 77, at the Mosaic Home at Glenfield near Liverpool.

Many of the old club members will remember Charlie for his kindness and great enthusiasm in the early 'thirties. Our sympathy is extended to his daughter Doreen, and two sons, Tom and Ali.

Gilbert Pollock VK2FU

EMONA ELECTRONICS	20, 36, 37
GFS ELECTRONIC IMPORTS	7
HAM RADIO SUPPLIES	45
LINDA LUTHER	50
MICRO SHOP	50
EDDIE ROOMS	33
TRIO INDUSTRIES	39
SIDEBAND ELECTRONIC IMPORTS	39
SIDEBAND ELECTRONIC SALES	8, 28
SPECTRUM INTERNATIONAL INC.	8
GRAHAM E. STALLARD	30
TOWNSVILLE RADIO CLUB	21, 25
TRIO-KENWOOD	21, 25
"WICOM"	2
WILLIAM WILLIS & CO. PTY. LTD.	21

\* WIA WARC FUND SUPPORTER



# A NOTICE OF INTEREST



**KENWOOD**

The local hams in the colony of New Holland are duly advised that Trio-Kenwood have just received a shipment of the new Power Plus TS-120S series.

Engineered for the more discerning amateur operators. The TS-120S is the most recent successful result of Kenwood's advanced engineering capability, giving a compact, lightweight transceiver with 100W RF output power.

Another new arrival is the TR-7625 2 meter FM transceiver with memory, designed to permit multichannel (800-channel) operation.

You are respectfully invited to view this merchandise at your local friendly Trio-Kenwood retailer.

PS-30 20A Power Supply.  
SP-120 Speaker unit.  
TS-120S HF SSB Transceiver.  
VFO-129 Remote VFO unit.



TR-7625  
2M FM Transceiver.



TS-120S

P.S. We would like to inform all VHF buffs  
that we now have Phase III Satellite Equipment.

**TRIO-KENWOOD (AUSTRALIA) PTY. LTD.**

31 Whiting Street, Artarmon, Sydney, N.S.W. 2064. Telephone (02) 438-1277

**Interstate Distributors:**

VIC: VICOM IMPORTS PTY. LTD. (03) 699-6700 • QLD: MITCHELL RADIO CO. (07) 57-6830 • S.A. & N.T.:

INTERNATIONAL COMMUNICATIONS SYSTEMS PTY. LTD. (08) 47-3688 • W.A.: WILLIS TRADING CO. (09) 321-7600

• TAS.: ADVANCE ELECTRONICS (003) 31-5688

**PLUS MANY OTHER REGIONAL OUTLETS THROUGHOUT AUSTRALIA**

# CHIRNSIDE ELECTRONICS

FRED SWART - VK3NBI

AMTENNEA TYPE AM 4-2

## AMTENNEA. ANTENNAS

AM4-2. 15-10 M.

DUO BAND BEAMS NOW ONLY

**\$159**

- 8 dB. Forward Gain. 12 month warranty.
- 25 dB. front to back. Solid Construction.
- 4 M.Boom.
- 2 kW. Power Rating. (ideal Novice use!)

Soon available TYPE AM 3-3. 20-15-10 M.

SUPPORT LOCAL INDUSTRY.

### ROTATORS

EMOTATOR Rotators have thermal cut-out for overload protection.

Emota model	Torque (kg./cm.)
103 L BX	1,500
802 CXX	4,000
1102 MXX	10,000



### EMOTATOR "THE BEST ROTATOR"

201AXX. New Model.....	\$175
103L BX. Medium Duty.....	\$169.
502CXX. Heavy Duty.....	\$249.
1102MXX. Extra Heavy Duty.....	\$369.
1103MXX. Extra Extra Heavy Duty.....	\$395.
502 Mast Clamp.....	\$32.
103 Mast Clamp.....	\$22.
VCTFX-7. 7 Core Cable. per Metre.....	\$1.20
VCTF-6. 6 Core Cable. per Metre.....	\$1.00.
VCTF-5. 5 Core Cable. per Metre.....	\$0.90.

MODEL 201AXX NEW MODEL  
Highlow speed  
Rotation Torque - 900/700 Kg/cm  
Brake Torque - 1500 Kg/cm  
\$175

### ANTENNA COUPLERS



HC-75. Tokyo Hy-Power Labs. Transmatch	
75W PEP.....	\$69.
HC-250. Tokyo Hy-Power Labs. Transmatch	
250W PEP.....	\$85.
HC-500A. Tokyo Hy-Power Labs. Transmatch	
500W PEP. Inc. 160M.....	\$119.
HC-2500. Tokyo Hy-Power Labs. Transmatch	
2.5Kw. PEP.....	\$199.
AT-200. Kenwood. 200 Watts.....	\$184.
PC-301. Yaesu. 500W Inc. SWR and PWR Meters.....	\$239.
PC-901. Yaesu. 500W Inc. SWR and PWR Meters.....	\$269.



Only \$65.

26 EDWARDS RD.  
LILYDALE 3140.  
PHONE (03) 726 7353  
FAST MAIL ORDERS.

All prices include Sales Tax. Freight and Insurance extra.  
Price and specifications are subject to change without notice.

TRAP  
VERTICALS.



NOW AVAILABLE

ALL AUSTRALIAN MADE TRAPPED  
VERTICAL ANTENNAS.

80-10 M AMTENNEA TYPE AMV-5

only **\$99** including radial kit.

Why pay more for imported types.



AUSTRALIAN MADE.  
MULTI BAND BEAMS.

AM 4-2 • 15-10 M. \$159.-  
AM 3-3 • 20-15-10 M. \$219.-

MONO BAND BEAMS.

AB 3-10 • 3 el. 10 M. \$89.-  
AB 5-10 • 5 el. 10 M. \$89.-  
AB 3-15 • 3 el. 15 M. \$89.-  
AB 5-15 • 5 el. 15 M. \$139.-  
AB 3-20 • 3 el. 20 M. \$129.-  
AB 4-20 • 4 el. 20 M. \$159.-

Allow 10 days for delivery.

VHF BEAMS.

AV 5-2 • 5 el. 2 M. \$28.-  
AV 8-2 • 8 el. 2 M. \$39.-

ROTARY DIPOLE.

AM 1-3 Dipole 20-15-10 M. \$ 99.-

Due to great demand, some delay may occur.

Open 6 days a week.

bankcard  
welcome here